

Master in Innovation and Business

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ROOTS2BEANS

**In Partial Fulfillment
of the Requirements for the Course
Innovation Strategy and Journey 1: Insighting**

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EXECUTIVE SUMMARY

A dilemma facing the coffee industry in the Philippines is the country's inability to produce coffee in the quantity consumed despite being one of the biggest coffee consumers in Asia, and fifth in the world, consuming over 16.8 billion cups of coffee each year, penetrating 9/10 households in the Philippines, with a market size of 97.5 billion PHP annually (Nestlé, 2024). The annual consumption of coffee in the Philippines is 200,000 metric tonnes (MT) while the production capacity is only 30,000 MT, hence a need to import 81% of coffee needs, amounting to 330,000 MT of soluble coffee in the year 2023 alone (Nestlé, 2024).

The problem in the country's coffee sector is not based on agriculture, but rather an institutional issue. First of all, the crisis is caused by small-scale farming involving aged growers (aged 57 years) who are losing young farmers' interest to farm, farming on 1-2 hectares of land with senile plants, lack of quality seeds and fertilizers, technical assistance, poor post-harvest infrastructure, and risks from climate change where 47% of the world's coffee comes from countries that may have 60% reduction of viable land by 2050 (World Coffee Research as cited in (Nestlé, 2024).

With average yields ranging from 0.24-0.54 MT/ha, compared to the 2.0 MT/ha benchmark set by the Department of Agriculture (2022), farmers are locked within the poverty line of ₱129,072/year, while private investors shy away because of the massive capital needed, complicated process, and gestation period of 2-3 years.

This capstone project identifies and validates the problem space through comprehensive industry analysis, gap assessment, and customer segmentation. Drawing on data from the Philippine Coffee Industry Roadmap 2021-2025, the Nescafé Plan 2030 Progress Report, PhilCAFE project outcomes, Nestlé's Project Coffee+ impact metrics, Cooperative leaders of Tibolo Farm Workers Association (TIFWA), Bagobo Tagabawa Fair Trade Marketing Cooperative (BATAFAMA), Operations leaders and farmers of SunFood Marketing and the Department of Agriculture (DA). Roots2Beans will demonstrate that the barriers to Philippine coffee self-sufficiency are not agronomic related but systemic coordination failures. When provided with quality planting materials, agronomic supervision, in-kind financing, and guaranteed offtake, farmers in Project Coffee+ achieved a fourfold increase in yield—from 0.24 MT/ha to 1.0 MT/ha—and crossed the national poverty threshold (Nestlé Philippines, 2026). Roots2Beans seeks to replicate and scale this success through a replicable, investable, and market-driven platform that aligns farmer livelihoods, landowner returns, buyer requirements, and national development goals into a single, sustainable value chain.



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OBJECTIVES OF THE CAPSTONE IDEA

General Objective

The overarching objective of the Roots2Beans capstone project is to diagnose, understand, and address the behavioral and system design barriers that perpetuate low productivity, quality inconsistency, and market fragmentation among Philippine smallholder coffee farmers.

By investigating how risk aversion, traditional practice adherence, short-term cash pressures, and fragmented decision-making interact with weak value chain coordination, misaligned incentives, and absent feedback mechanisms, this project aims to articulate a growership platform model that realigns farmer behavior with productivity goals and redesigns industry systems to enable coordinated, quality-driven, market-oriented agribusiness.

The project seeks to validate that transforming behavioral patterns and system architecture, not just providing inputs or training, can unlock measurable improvements in farmer income, land productivity, supply reliability, and import substitution, thereby advancing Sustainable Development Goals 1, 2, 8, 10, 12, 13, 15 & 17.

Specific Objectives

The following specific objectives will attain the General Objective by systematically addressing the behavioral and system design root causes:

- Diagnose behavioral drivers preventing adoption of productivity-enhancing practices among smallholders;
- Map system design failures perpetuating quality inconsistency and market fragmentation in the Philippine coffee value chain;
- Validate the growership platform hypothesis that realigning incentives and redesigning coordination mechanisms can shift behavior and overcome system barriers;
- Establish behavioral and system conditions required for scalable adoption among fragmented smallholders; and
- Articulate a replicable framework for transforming behavioral and system design problems into coordinated, quality-driven agribusiness ecosystems.



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CURRENT BUSINESS AND TECHNICAL SITUATION

Environmental Analysis

THE MARKET SEGMENT

TAM-SAM-SOM Framework

MARKET LEVEL	QUANTIFICATION	KEY ASSUMPTIONS
TAM (Total Addressable Market)	Farmers: ~100,000 smallholder coffee farmers	Smallholders represent ~80% of Philippine coffee industry
	Area: ~85,000 ha under smallholder management (1-2 ha average)	Average farm size 1-2 hectares
	Current Production: ~25,000 MT Green Coffee Bean (GCB) annually	Current yield 0.54 MT/ha; potential 2.0 MT/ha
	Potential Production: 170,000 MT GCB at 2.0 MT/ha target	Target selling price ₱200/kg GCB
	Value: ₱34 billion at ₱200/kg GCB	
SAM (Serviceable Addressable Market)	Farmers: ~70,000 smallholders in Mindanao	Mindanao accounts for 84% of national production (Nestlé Philippines, 2026)
	Area: ~60,000 ha	SOCCSKSARGEN (35.6%), Davao (17.85%), BARMM (17.42%) are priority regions
	Current Production: ~20,000 MT GCB	Government support strong
	Target Production: 72,000 MT GCB at 1.2 MT/ha	Existing Nestlé/Project Coffee+ infrastructure facilitates scale-up
	Value: ₱14.4 billion	



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SOM (Serviceable Obtainable Market)	Target Farmers: 500-1,000 smallholders by Year 3	Conservative yield assumption based on Project Coffee+ outcomes (0.24 → 1.0 MT/ha)
	Target Area: 100-500 hectares under integrated management	Buyer contracts securing ≥70% of produced volume
	Expected Yield: 1.0–1.2 MT/ha GCB	Quality premiums of 10–25% for standardized, traceable beans
	Production Volume: 100–600 MT GCB annually	Modular processing hubs breakeven at 500–1,000 productive trees
	Revenue Potential: ₱20M–₱120M from green bean sales	Existing MOAs with SF Group, Helpmate Services, DA-BPI de-risk initial scale-up
	Farmer Margin: ₱80K–₱200K/ha after costs	

Segmenting

Roots2Beans segments smallholder farmers across three strategic dimensions:

By Farm Size & Production Capacity

Segment	Farm Size	Current Yield	Annual Production	Income Level	Priority
Micro Smallholders	<1 ha	<0.3 MT/ha	<300 kg GCB	Below poverty	High (rehabilitation potential)
Typical Smallholders	1-2 ha	0.3-0.6 MT/ha	300-1,200 kg GCB	Near poverty	Core Target
Progressive Smallholders	2-3 ha	>0.6 MT/ha	>1,200 kg GCB	Above poverty	Peer Mentors

By Coffee Type & Quality Potential

Coffee Type	Share of Smallholder Production	Current Price (₱/kg GCB)	Roots2Beans Focus
Robusta	76.5%	₱72.92	Core: mass-market instant coffee, import substitution
Arabica	16.7%	₱103.25, 2020	Secondary: specialty cafés, premium pricing



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Excelsa/ Liberica	6.8%	Variable	Niche: cultural branding, origin stories
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By Geographic Priority

Tier	Region	Smallholder Population	Rationale
Primary	SOCCSKSARGEN (Region 12)	~30,000 farmers	35.6% of national production; ₱129M DA allocation; existing Project Coffee+ success
Primary	Davao Region (Region 11)	~20,000 farmers	17.85% of production; Nestlé buying stations; strong LGU support
Secondary	BARMM	~18,000 farmers	17.42% of production; peace dividend opportunity; DENR NGP areas
Secondary	Northern Mindanao (Region 10)	~8,000 farmers	9.23% of production; Bukidnon highlands suitable for Arabica

Targeting

Roots2Beans employs a **phased targeting strategy** focused exclusively on smallholder coffee farmers:

Primary Target Segment: Transitional Smallholders in Mindanao being the bulk producer of GCB.

Selection Criteria:

- Farm size: 1-2 hectares
- Current yield: 0.3-0.6 MT/ha
- Location: SOCCSKSARGEN or Davao Region
- Coffee type: Primarily Robusta
- Willingness to adopt GAP and commit in a clustered production planning
- Farmer Age: 40-65 years

Why Target This Segment:

- **Highest Leverage:** Rehabilitating 100 ha of transitional smallholder farms can add 50-70 MT GCB annually
- **Proven Model:** Project Coffee+ demonstrated 4x yield increase and 4x income growth among similar farmers
- **Social Impact:** 100% of assisted Project Coffee+ farmers crossed PSA poverty threshold
- **Scalability:** Transitional smallholders represent the largest untapped production potential
- **Risk Profile:** More open to innovation than laggards; less risky than subsistence farmers with <1 ha



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Secondary Target Segments (Phased Engagement):

1. Progressive Smallholders (Peer Mentors)

- **Profile:** 2+ ha, yield >0.6 MT/ha, GAP-trained, active in associations/cooperatives
- **Role:** Demonstration farm hosts; peer trainers; cluster leaders
- **Engagement:** Leadership development; advanced agronomy training; quality premium incentives

2. Subsistence Smallholders (Rehabilitation Focus)

- **Profile:** <1 ha, yield <0.3 MT/ha, no GAP adoption, sell to traders
- **Role:** Long-term transformation; poverty alleviation priority
- **Engagement:** Intensive technical support; input financing; social protection linkages

Exclusion Criteria:

- Farmers with >5 ha (shift to institutional landowner segment—outside current scope)
- Farmers unwilling to commit to GAP standards or clustered production
- Farmers in conflict-affected areas without security guarantees

Positioning

Roots2Beans is the integrated coffee production platform that empowers Philippine smallholder farmers to transform low-yield, subsistence farming into sustainable, quality-driven agribusiness enabling farmers to achieve 4x yield improvement, cross the poverty threshold, and secure guaranteed markets for their harvest.

Positioning Pillars

Pillar	Message	Evidence
Yield Improvement	"From 0.54 to 1.2-1.8 MT/ha"	Project Coffee+ validated 0.24 → 1.0 MT/ha achievement
Income Stability	"From poverty to ₱533,542/year"	100% of Project Coffee+ participants crossed poverty threshold
Risk Mitigation	"Focus on growing; we handle the rest"	Guaranteed offtake, in-kind financing, agronomist supervision
Quality Premiums	"Earn 10-25% more for better beans"	Standardized processing, traceability, buyer-aligned specs

Competitive Differentiation

Competitor Type	Typical Approach	Roots2Beans Differentiation
Traders/Consolidators	Buy low, sell high; minimal investment in farm productivity	Invests directly in yield improvement, quality standardization, farmer capability creating long-term value
NGO/Government Programs	Focus on training, infrastructure,	Integrates production, quality, finance, and market access under one accountable platform;



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	subsidies; often lack market linkage	designed for commercial scalability
Individual Buyers (Cafés)	Prioritize downstream branding; source inconsistently due to quality risk	Builds upstream reliability first ensuring consistent quality and volume before expanding downstream

Serviceable Obtainable Market (SOM)

Year	Target Farmers	Target Area (ha)	Expected Yield (MT/ha GCB)	Production Volume (MT GCB)	Revenue Potential*	Key Milestones
Year 1	100-200	50–100	0.8–1.0	40–100	₱8M– ₱20M	Pilot launch in Sultan Kudarat/Bukidnon 500–1,000 productive trees under farm management First guaranteed offtake agreements signed Modular processing hub operational
Year 2	250-500	150–250	1.0–1.1	150–275	₱30M– ₱55M	Expansion to 2–3 additional municipalities Clustering of 200+ smallholder farms Quality certification (GAP, traceability) achieved Input financing portfolio scaled
Year 3	500-1,000	300–500	1.1–1.2	330–600	₱66M– ₱120M	Regional scale-up across SOCCSKSARGEN Arabica specialty line launched Export-ready documentation systems Breakeven at platform level

**Revenue based on conservative ₱200/kg GCB average selling price; excludes ancillary streams (processing fees, nursery sales, financing interest)*



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SOM Validation Assumptions

1. **Yield Realism:** Based on Project Coffee+ results (0.24 → 1.0 MT/ha in 7 years); Roots2Beans targets 1.0–1.2 MT/ha by Year 3 through accelerated rehabilitation and GAP adoption.
2. **Market Absorption:** Corporate buyer MOUs secure ≥70% of produced volume; remaining 30% allocated to specialty/local markets at premium pricing.
3. **Quality Premiums:** Standardized, traceable beans command 10–25% price premiums over commodity farmgate prices.
4. **Risk Mitigation:** Default rates <5% due to in-kind input financing, clustered production planning, and agronomist-led supervision.
5. **Infrastructure Scalability:** Modular processing hubs designed for 500–1,000 tree breakeven; additional capacity added incrementally with production growth.

SOM as % of Smallholder Market Opportunity

Metric	SOM (Year 3)	SAM (Mindanao Smallholders)	% Penetration
Volume	330–600 MT GCB	~20,000 MT current production	1.7–3.0%
Value	₱66M–₱120M	₱14.4 billion potential	0.46–0.83%
Farmer Impact	500–1,000 farmers directly served	~70,000 Mindanao smallholders	0.7–1.4%

EXTERNAL ENVIRONMENT

PESTEL Analysis

Factor	Roots2Beans Implications	Strategic Response
POLITICAL		
Republic Act 7900 (High-Value Crops Development Act) & creation of Coffee Industry Development Office (CIDO) via Department Order No. 6, Series of 2026	Strong government policy support creates enabling environment for coffee sector investments; CIDO provides centralized coordination for industry development programs	Position Roots2Beans as a strategic implementation partner for CIDO initiatives; align platform design with national roadmap targets to access technical assistance and policy support
DA budget increase to ₱449M in 2026 (nearly 3x 2025 allocation) with ₱129M earmarked for Sultan Kudarat production support	Increased public funding availability for production support, extension services, machinery, and irrigation in priority coffee regions	Pursue co-investment opportunities with DA-HVCDP for shared-service processing hubs; leverage public infrastructure (FMR, irrigation) to reduce platform capital requirements



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DENR National Greening Program (NGP) allotting 86,000 hectares for coffee (2016-2028)	Significant land availability for coffee expansion under government-supported reforestation framework	Develop partnership model with DENR to integrate Roots2Beans growership system into NGP areas; offer technical supervision and market linkage as value-add to government planting programs
Special Safety Safeguard Measures on imported coffee products	Trade protection mechanisms may reduce import competition and improve price stability for domestic producers	Advocate for continued safeguard measures while building domestic supply capacity; position Roots2Beans as import-substitution solution that meets buyer quality requirements
ECONOMIC		
81% import dependency (₱81.2M annual import expenditure); local production only 30,000 MT vs. 200,000 MT consumption	Massive supply gap represents commercial opportunity but also signals structural weakness in domestic value chain competitiveness	Target import substitution segment with guaranteed quality and volume; structure offtake agreements that offer buyers reliable domestic alternative to imports at competitive landed cost
Farm gate price volatility (Robusta: ₱72.92/kg; Arabica: ₱103.25/kg) dictated by world prices; production cost ₱45.50/kg GCB	Price uncertainty discourages farmer investment in rehabilitation; thin margins limit capacity to adopt improved practices	Implement quality-linked pricing with floor price guarantees; bundle in-kind input financing with agronomic support to improve cost efficiency and yield, expanding margin buffer
Projected 10-13% annual category growth; Philippines as 2nd largest coffee consumer in Asia, 5th globally	Strong and growing domestic demand provides stable market foundation for scaled production	Prioritize domestic buyer relationships for initial scale-up; design modular processing to flexibly serve both mass-market (Robusta) and specialty (Arabica) segments as demand evolves
PhilCAFE demonstrated \$7.6M leveraged investments from \$17M public funding; Project Coffee+ achieved 4x yield and income improvement	Proven models show that integrated support can unlock commercial viability and attract private capital	Use PhilCAFE/Project Coffee+ results as validation for investor pitch; structure Roots2Beans as blended finance vehicle that combines public support with



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		private equity for scalable impact
SOCIAL		
Aging farmer population (average age 57) with declining youth interest in agriculture	Risk of production decline as current farmers exit; knowledge transfer gap threatens continuity of coffee farming	Integrate youth engagement and agripreneurship training into platform; design growership model that reduces physical labor burden while offering attractive returns to next-generation operators
Smallholder dominance (1-2 ha average farm size); 9/10 Filipino households consume coffee; growing café culture and third/fourth-wave specialty demand	Fragmented production limits economies of scale; rising consumer expectations for quality, origin, and sustainability create premium opportunities	Cluster smallholders under unified production planning and quality standards; develop traceability and storytelling capabilities to capture specialty market premiums
Women's active participation in processing, marketing, harvesting, sorting, grading, packaging	Untapped potential for gender-inclusive value creation; women often manage post-harvest quality decisions	Design platform roles and training that intentionally engage women in quality control, nursery management, and enterprise leadership; track and report gender impact for ESG-aligned investors
TECHNOLOGICAL		
Low technology adoption; average yield 0.54 MT/ha vs. potential 2 MT/ha; limited access to quality seedlings, fertilizers, modern agronomy	Productivity gap represents both challenge and opportunity; farmers lack access to inputs and knowledge needed to close yield gap	Embed agronomist-led supervision, quality planting materials, and GAP-aligned SOPs as core platform services; use demo farms and peer-mentor networks to accelerate technology diffusion
PhilCAFE trained 17,800 farmers in GAP; 300+ coffee mentors; 66 Q professionals; DNA genotyping for traceability (282 samples tested)	Growing technical capacity in sector but still insufficient coverage; traceability infrastructure emerging but not yet standardized	Build on existing mentor/Q-grader networks for platform quality assurance; invest in digital traceability system that integrates DNA verification for premium market access
Nescafe Plan introduced regenerative agriculture to 13,000 farmers; 10 practices including	Regenerative agriculture gaining traction as climate adaptation and quality improvement	Make regenerative practices default standard for Roots2Beans farms; quantify and communicate



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agroforestry, soil conservation, integrated pest/nutrient management	strategy; buyers increasingly value sustainability credentials	environmental co-benefits (carbon sequestration, biodiversity) to attract ESG-focused buyers and investors
Mobile applications for pest detection and real-time monitoring under development	Digital tools can extend technical support reach and improve decision-making at farm level	Partner with agtech providers to integrate mobile monitoring into platform; use data analytics to optimize input recommendations and predict quality outcomes
ENVIRONMENTAL		
Climate change threat: 47% of global coffee production from countries that could lose over 60% of suitable land by 2050; Philippines vulnerable to drought, pests, extreme weather	Production risk increasing; need for climate-resilient varieties and adaptive farming practices to ensure long-term supply security	Prioritize climate-resilient coffee varieties in nursery operations; embed agroforestry and soil conservation as core practices; develop climate risk insurance products for platform participants
Regenerative agriculture adoption: 32% of Nescafe coffee from regenerative farms (2024), targeting 50% by 2030; 20-40% lower GHG emissions per kg green coffee	Market shift toward low-carbon, ecosystem-positive production; buyers seeking verifiable environmental impact	Certify Roots2Beans farms under recognized regenerative standards; measure and report GHG reductions, soil health improvements, and biodiversity outcomes as value differentiators
Soil degradation, low fertility, inadequate nutrient management; water scarcity and inefficient irrigation in key growing areas	Yield constraints and input inefficiencies linked to poor soil and water management; rehabilitation requires significant investment	Make soil testing and site-specific nutrient management standard platform service; promote water-efficient practices and rainwater harvesting; bundle organic input production (compost, vermicast) to improve soil health cost-effectively
LEGAL		
BPI Nursery Accreditation requirements; GAP certification approved March 2016; food safety and environmental compliance standards	Regulatory compliance essential for market access and buyer acceptance; certification processes can be costly and complex for smallholders	Centralize certification management under Roots2Beans platform; provide technical assistance and cost-sharing for GAP/BPI accreditation;



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		maintain digital compliance records for audit readiness
Traceability and labeling policies under development; intellectual property rights for coffee varieties; land access policies noted as inappropriate in roadmap	Emerging regulations on origin disclosure and variety protection create both compliance requirements and branding opportunities	Build traceability system that exceeds minimum regulatory requirements; secure IP rights for improved varieties developed through platform R&D; advocate for land policy reforms that facilitate long-term investment in coffee
Trade remedies and safeguard measures for imported coffee; PCIC crop insurance limited to tree mortality coverage	Import protections can support domestic pricing but may reduce competitive pressure for quality improvement; limited insurance options leave farmers exposed to production risks	Leverage safeguard measures strategically while building quality competitiveness; develop bundled insurance products (yield, price, climate) through partnerships with PCIC and private insurers to de-risk platform participation

Key Strategic Themes Across PESTEL Factors:

1. **Policy Alignment:** Roots2Beans should position itself as an implementation vehicle for national coffee development priorities (CIDO, HVCDP, NGP) to access public support while advancing commercial scale.
2. **Import Substitution Opportunity:** The 81% import dependency gap represents a ₱81.2M annual commercial opportunity; Roots2Beans can capture value by delivering the volume, quality, and traceability that currently drive buyers to imports.
3. **Technology as Enabler, Not Optional:** Closing the yield gap (0.54 → 2.0 MT/ha) requires embedded agronomic support, quality inputs, and digital monitoring as core platform services—not add-ons.
4. **Climate Resilience as Competitive Advantage:** With 60% of suitable coffee land at risk by 2050, regenerative practices and climate-adaptive varieties are not just sustainability credentials but supply security imperatives.
5. **Regulatory Proactivity:** Emerging traceability, labeling, and certification requirements create compliance costs but also branding opportunities; Roots2Beans should build systems that exceed minimum standards to differentiate in premium markets.



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Porter's Five Forces

Force	Level of Intensity	Key Drivers	Implications to Roots2Beans
Threat of New Entrants	Moderate to High	• High capital requirements (nursery, modular processing hubs, working capital)	• Barriers are meaningful but lowering due to public funding and market pull
		• Technical complexity (GAP compliance, agronomic supervision, quality control)	• First-mover advantage critical to secure farmer clusters and buyer MOUs
		• Strong government support (₱449M DA budget, CIDO creation, ₱129M Sultan Kudarat allocation)	• Infrastructure and relationship lock-in will deter late entrants
		• Growing market demand (10–13% CAGR, 16.8B cups annually)	
Bargaining Power of Suppliers (Smallholder Farmers)	Low to Moderate	• ~100,000 fragmented farmers (1–2 ha avg)	• Platform holds structural advantage in pricing and quality enforcement
		• Aging demographic (avg. 57 years) with declining youth interest	• Must build trust to prevent farmer churn or side-selling
		• Low organization; limited cooperative membership	• In-kind financing and guaranteed offtake are key retention mechanisms
		• Urgent cash needs; dependence on traders for immediate liquidity	
		• Limited market access and price transparency	
Bargaining Power of Buyers (Corporate/ Institutional)	High	• High concentration (Nestlé, URC, Commonwealth control ~80% instant market)	• Buyers dictate contract terms and quality thresholds
		• Import alternatives (330,000 MT soluble coffee imported in 2023)	• Margin pressure requires efficiency gains and quality premiums



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		• Strict volume, quality, and traceability requirements	• Volume reliability (100–600 MT by Y3) is non-negotiable for offtake agreements
		• Low switching costs; price sensitivity tied to world markets	
Threat of Substitute Products	Moderate	• Imported coffee (Vietnam robusta, Indonesian/Arabica blends)	• Primary substitute is imports, not other beverage categories
		• Alternative beverages (tea, energy drinks), though coffee holds 9/10 household penetration	• Roots2Beans can capture the 81% import substitution gap by offering reliable local supply
		• Strong domestic coffee culture and "Buy Philippine" movement	• Cultural shift toward local origin storytelling supports premium positioning
		• Growing specialty/ESG-aligned sourcing demand	
Industry Rivalry	High	• Fragmented traditional traders (buy-low/sell-high, no productivity investment)	• Avoid competing on transactional margins or isolated interventions
		• NGO/government programs (strong training, weak market linkage)	• Must compete on integrated value chain control and execution reliability
		• Specialty cafés/roasters (quality focus, inconsistent supply)	• Operational discipline across 100–1,000+ farms is the main battlefield
		• Price competition and low differentiation among local producers	
		• Climate vulnerability affecting supply stability	



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Competitor Strategy Deconstruction Matrix

Competitor	Segment	Problem	Value	Strength	Weakness	Gap
Traditional Traders/ Consolidators	Smallholder farmers	Immediate cash needs, lack of market access	Quick purchase, farm-gate buying, cash payment	Wide network, established relationships, flexible terms	Low prices, no quality premium, no technical support	Farmers remain in poverty trap; no productivity improvement
Government / NGO Programs	Organized farmer cooperatives, LGU partnerships	Lack of training & post-harvest facilities	Free/subsidized inputs, training, equipment	Public funding, technical expertise, policy support	Limited sustainability post-project, weak market linkage, fragmented coverage	Market access gap; farmers trained but lack buyers
Individual Smallholder Farmers (Status Quo)	Fragmented, independent producers	Low yields, inconsistent quality, no bargaining power	Autonomy, no contractual obligations	Low entry barriers, familiar practices	Poverty-level income, high risk, no scale, aging farmer population	Systemic failure; 81% import dependency persists
Large Corporate Buyers	Industrial processors, instant coffee manufacturers	Volume consistency for production	Competitive pricing, quality standards, guaranteed offtake	Market power, processing capacity, brand strength	Import reliance (81%), limited local sourcing, price pressure on farmers	Smallholders excluded from formal value chains; no long-term contracts



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INTERNAL ENVIRONMENT

BCG Growth-Share Matrix

		RELATIVE MARKET SHARE	
		HIGH	LOW
MARKET GROWTH RATE	HIGH	STARS	QUESTION MARKS
		Integrated Smallholder Growership (Robusta)	Digital Agri-Platform & Mobile Extension
		• 10–13% annual category growth; fastest in Asia	• High mobile penetration; low current digital share
		• Validated 4x yield improvement (0.24 → 1.0 MT/ha)	• High upside for remote agronomy, pricing alerts & order matching
		• Core scalable revenue driver; strong ESG/investor appeal	• Requires initial tech investment & farmer onboarding
	LOW	CASH COWS	DOGS
		GCB Consolidation & Standard Trading	Traditional Fragmented Farming (Status Quo)
		• Mature commodity market; stable institutional demand	• Declining productivity (-3.5%/yr); aging farmer base
		• Centralized post-harvest & logistics create cost efficiency	• Low share; highly fragmented; vulnerable to climate shocks
		• Generates steady cash flow to fund Stars & Question Marks	• Inefficient; high risk; divest or transform into integrated model

GAP Analysis

Dimension	Current State (Smallholders)	Gap	Desired State
Yield/ Productivity	0.54 MT/ha avg yield	73% below 2.0 MT/ha target	1.0–1.2 MT/ha GCB by Year 3
	693 trees/ha vs. 1,100 standard	Low tree density, poor agronomy	Optimal density, GAP-compliant practices
	Aging trees, limited GAP adoption		
Financing Access	₱75K–₱111K/ha Year 1 cost; 2–3 yr gestation	Capital gap deters rehabilitation	In-kind input financing + agronomic support



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	Stringent loans; PCIC covers only tree mortality	No income during gestation; thin risk coverage	Harvest-aligned repayment; <5% default target
			Bundled insurance (yield, price, climate)
Technical Support	<20% farmers trained in GAP	Knowledge/adoption gap persists	Agronomist-led supervision (1:50–100 ha)
	Limited extension (once/year); aging farmers (avg. 57)	No sustained supervision for implementation	100% GAP + regenerative practices training
			80%+ adoption via peer networks + digital tools
Market Access	Farmers sell to traders at farm gate	Fragmented production → no reliable volume	Multi-year offtake for ≥70% of production
	Price volatility (world-driven)	Inconsistent specs → no long-term contracts	Quality-linked pricing + floor guarantees + 10–25% premiums
	No quality premiums	No quality premium mechanism	Full traceability for buyer ESG reporting
Post-Harvest Infrastructure	Limited dehullers, dryers; sun-drying common	No standardized facilities → inconsistent quality	Modular hubs (500–1,000 trees breakeven)
	Fragmented smallholder processing	No economies of scale in processing	100% controlled, quality-assured processing
Planting Materials	Shortage of certified seedlings	Insufficient quality seedlings for expansion	100% certified seedlings for platform area
	40 BPI-accredited nurseries; limited varietal options	Lack of climate-resilient, high-yield varieties	Introduce improved varieties
			DNA fingerprinting for authentication
Climate Resilience	47% of global production at risk of >60% land loss by 2050	Most farms lack climate-adaptive practices	Regenerative practices as default standard



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	32% regenerative adoption (Nescafé); soil/water issues persist	Limited GHG/soil/biodiversity measurement	Quantify/report 20–40% lower GHG/kg, soil health gains
		ESG demand unmet by verified local supply	Certify under recognized sustainability standards for premium markets

SWOT Analysis

a. Industry/External Perspective

Strengths	Weaknesses	Opportunities	Threats
Favorable climate for coffee production	Fragmented smallholder system	Import substitution (large unmet demand)	Climate risks and crop variability
Strong domestic and institutional demand	Poor farmer discipline and financial behavior	Premium pricing for quality beans	Continued dependence on imports
Government support and policy attention	Lack of post-harvest infrastructure	Integration of technology and traceability	Farmer disengagement or crop switching
	Limited traceability and quality control	Corporate-led growership models	Misallocation of financing and subsidies

b. Internal Perspective

Strengths	Weaknesses	Opportunities	Threats
Integrated model (financing + production + processing + market access)	High upfront capital requirements (tree investment, infrastructure)	Capture unmet demand through import substitution	Replication by competitors once model is proven
Clear differentiation through behavioral control system	Execution complexity across multiple value chain stages	Build long-term supply contracts with institutional buyers	Regulatory changes affecting agri-financing or land use
Strong alignment with institutional buyer requirements	Dependence on farmer compliance and onboarding success	Position as a platform/orchestrator in the coffee ecosystem	Farmer resistance to structured or controlled systems



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Potential to leverage technology (traceability, monitoring, analytics)	Early-stage model (limited proven scale track record)	Expand into value-added processing and branding	Climate and disease risks affecting yield projections
Ability to aggregate fragmented farmers into a structured system	Requires strong operational discipline and field management capability	Access impact investment and ESG-linked funding	Execution risk during early scaling phase

TOWS Analysis

	WEAKNESSES	STRENGTHS
THREATS	WT MINI-MINI STRATEGIES • Focused Geographic Strategy • Conservative Growth Trajectory • Risk-Sharing Contract Structures • Regulatory Compliance by Design • Contingency Planning for Climate Shocks	ST MAXI-MINI STRATEGIES • First-Mover Advantage Defense • Regulatory Risk Mitigation • Farmer Adoption Acceleration • Climate Resilience Integration • Operational Excellence During Scale
OPPORTUNITIES	WO MINI-MAXI STRATEGIES • Blended Finance to Reduce Capital Burden • Strategic Partnerships to Reduce Complexity • Phased Farmer Onboarding to Build Compliance • Pilot Validation to Build Track Record • Talent Development to Build Operational Capability	SO MAXI-MAXI STRATEGIES • Rapid Market Penetration Through Integrated Model • Platform Orchestration Through Technology • Long-Term Contract Lock-In • Value Chain Expansion • Impact Investment Mobilization



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Value Chain Analysis

Value Chain Stage	Current Condition (Philippine Coffee Industry)	Roots2Beans Intervention
Input Provision (seedlings, fertilizers, financing)	• Inconsistent utilization of inputs with limited monitoring	• Clonal garden and nursery operations for quality seedlings
	• Government seedling subsidies often low quality	• In-kind input financing bundled with agronomic support
	• Fertilizers not appropriate for plant stage	• Site-specific nutrient management based on soil testing
	• Only 40 BPI-accredited nurseries nationwide	• BPI accreditation for quality assurance
	• High upfront cost (₱75K-₱111K/ha) deters investment	• Harvest-aligned repayment terms (<5% default target)
	• Stringent loan requirements; limited farmer-friendly products	• Bundled insurance (yield, price, climate)
Farm Production (cultivation and maintenance)	• Production fragmented across ~100,000 smallholders (1-2 ha average)	• Agronomist-led supervision (1:50-100 ha ratio)
	• Inconsistent practices; limited GAP adoption	• Standardized SOPs aligned with GAP standards
	• Generally low productivity (0.54 MT/ha vs. 2.0 MT/ha target)	• 100% GAP training + 10 regenerative agriculture practices
	• Aging trees with limited rejuvenation	• Peer-mentor networks for knowledge sharing
	• Low planting density (693 vs. 1,100 trees/ha)	• Digital monitoring tools for real-time guidance
	• Extension services reach farmers only once/year	• Farm rehabilitation programs (pruning, grafting, replanting)
		• Target: 1.0-1.2 MT/ha by Year 3



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Harvesting	• Harvesting practices vary widely	• Harvest scheduling and planning across clustered farms
	• Stripping method common (all cherries regardless of ripeness)	• Quality-based pricing with 10-25% premiums
	• Results in inconsistent quality	• Training on selective picking (red cherries only)
	• Limited quality-based pricing incentives	• Harvest quality checkpoints before acceptance
	• Labor shortages during peak harvest	• Labor coordination through farmer clusters
		• Incentive structures for quality compliance
Post-Harvest Processing (drying, grading, milling)	• Processing decentralized and inconsistent	• Modular processing hubs (breakeven at 500-1,000 trees)
	• Sun-drying common (affects quality)	• Centralized quality control with Q-grader validation
	• Limited dehullers, depulpers, dryers	• Standardized SOPs (dry, wet, or semi-washed)
	• 100+ SSF established but utilization varies	• Controlled drying systems (mechanical + solar)
	• Quality variability prevents premium pricing	• 100% of Roots2Beans output processed under controlled conditions
	• Limited wet/washed processing capacity	• Quality grading and segregation by specifications
		• Traceability documentation at each stage
Aggregation & Consolidation	• Supply remains fragmented with weak consolidation	• Clustered production planning across 100-1,000+ farms
	• Farmers sell individually to traders	• Centralized collection points with quality checkpoints
	• No economies of scale in logistics	• Consolidated volumes for buyer contracts ($\geq 70\%$ secured)
	• Inconsistent volumes discourage buyer contracts	• Modular warehousing at processing hubs



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	• Limited storage and warehousing capacity	• Supply buffering to stabilize pricing
		• Target: 100-600 MT GCB by Year 3
Market Access (buyers, traders)	• Farmers rely on intermediaries (traders/consolidators)	• Guaranteed offtake agreements with corporate buyers
	• Limited visibility of market requirements	• Multi-year contracts (Nestlé, URC, specialty roasters)
	• Price volatility (world market-driven)	• Quality-linked pricing with floor price guarantees
	• No long-term contracts	• Direct buyer relationships (no intermediaries)
	• Buyers import 81% due to volume/quality concerns	• Market intelligence (pricing, demand forecasts)
	• No quality premium mechanism	• Premium capture (10-25% for standardized beans)
Distribution & Logistics	• Inconsistent supply limits distribution efficiency	• Leverage public FMR investments (P2B Sultan Kudarat allocation)
	• Poor farm-to-market roads increase costs	• Optimized harvest scheduling to match processing capacity
	• Limited cold chain and storage	• Digital logistics coordination platform
	• High logistics costs reduce farmer margins	• Consolidated shipments to reduce unit costs
	• Inefficient transport scheduling	• Strategic hub locations in priority regions
		• Partnerships with logistics providers
Traceability & Data Systems	• Limited use of data systems	• Digital traceability system from farm to cup
	• Minimal transparency across stages	• DNA fingerprinting for variety authentication
	• No unified traceability for domestic GCB	• Mobile platform for real-time data capture
	• PSA data differs from industry data	• Blockchain or distributed ledger for immutability



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	• Adulteration risk (imported beans mixed with local)	• Full documentation for buyer ESG reporting
		• Integration with DA/DTI harmonized database
Quality Assurance & Certification	• Only 66 Q-professionals trained nationwide	• Q-grader validation for all Roots2Beans output
	• Limited GAP/BPI certification among smallholders	• 100% GAP compliance and BPI accreditation
	• Inconsistent grading standards	• Sustainability certification (Rainforest Alliance, organic)
	• No recognized Philippine coffee identity	• Regenerative agriculture verification
	• Adulteration undermines trust	• Philippine Coffee identity development
		• Regular quality audits and feedback loops
Farmer Support & Capacity Building	• Limited extension services (once/year)	• Agronomist-led supervision (ongoing, not one-time)
	• Aging farmers (avg. 57 years) with limited exposure to modern agronomy	• Farmer Business School (FBS) for financial literacy
	• Declining youth interest	• Youth engagement programs for next generation
	• Limited business/financial literacy	• Women's empowerment initiatives
	• Weak cooperative organization	• Cooperative strengthening for collective bargaining
		• Peer learning networks and demonstration farms

Behavioral Economics Analysis

The underperformance of smallholder coffee farmers is often blamed on lack of discipline. In reality, their behavior is a rational response to a poorly designed system. Roots2Beans saw a behavioral pattern between members of the coffee associations/cooperatives and Nestlé's Project Coffee+.

Key Behavioral Drivers



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1. Present Bias - Coffee requires 2–3 years to generate returns and harvests only once a year, while farmers face immediate financial needs therefore inputs and financing are diverted to short-term survival.
2. Moral Hazard - Financing is provided without strict monitoring or enforcement. Most often, funds are misused or redirected.
3. Weak Incentive Structure - Effort is not clearly linked to reward therefore they do minimal farm maintenance and poor adherence to standards.
4. Lack of Monitoring & Feedback - No real-time tracking of farm activity or performance therefore there are inconsistent practices. What is not measured is not managed.

Problem Statement

Philippine Smallholder coffee farmers struggle with achieving stable income and consistent production because the current system fails to align incentives, financing, technical support and reliable market access, resulting in low yields, underinvestment in coffee, persistent poverty, inefficient use of capital and a fragmented supply chain that cannot meet domestic demand, forcing buyers to rely heavily on imports.

Customer Segments

Roots2Beans targets only the smallholder coffee farmers as their prime market segment, with about 100,000 coffee farmers throughout the country owning on an average 1-2 hectares of land. The target farmers come largely from the region of Mindanao (comprising 84% of the country's total produce), particularly the regions of SOCCSKSARGEN, Davao, and BARMM, whose average age is 57 years with present yield between 0.24 to 0.54 MT/ha of green coffee beans. The target coffee farmers are earning below the poverty line of ₱129,072 per year.

Population Size and Market Opportunity:

Total Addressable Market of 85,000 ha of smallholder farms capable of increasing GCB production capacity to 170,000MT per year based on a productivity of 2.0MT/ha as the target set in the roadmap, resulting in a valuation of ₱34 billion at ₱200 per kg of GCB. For the priority Mindanao regions, the market is estimated to be comprised of approximately 70,000 smallholders controlling 60,000 hectares, translating to the production of 72,000MT GCB worth ₱14.4 billion.

Potential Revenue Streams:

Sources of Revenue for Roots2Beans include: (1) Trading of GCB at ₱200 per kg with premiums of 10-25% for standardization and traceability purposes; (2) In-kind financing of farm inputs with repayment terms tied to harvesting season and less than 5% default rate; (3) Nursery operations and sales of high-grade seedlings sourced from BPI accredited clonal gardens; (4) Fees for processing and consolidation services at breakeven level requiring 500-1,000 productive trees; and (5) Pricing based on quality premiums, with a margin between ₱72.92-₱103.25 (per kg of commodity price) and premium buyer prices. For smallholder participants, the business model yields margins of ₱80,000-₱200,000 per hectare per annum, resulting in 3-5-year payback period.



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Jobs-To-Be-Done:

Smallholder coffee farmers seek to accomplish several critical objectives through Roots2Beans: (1) Increase farm productivity from current levels of 0.54 MT/ha to 1.2-1.8 MT/ha through quality seedlings and improved agronomic practices; (2) Achieve stable, predictable income that consistently exceeds the poverty threshold and provides financial security for their families; (3) Access quality farm inputs including certified seedlings, appropriate fertilizers, and bio-control agents without requiring upfront capital that they cannot afford; (4) Receive sustained technical support through agronomist-led supervision, Good Agricultural Practices (GAP) training, and peer-mentor networks; (5) Secure guaranteed market access through multi-year offtake agreements with floor price; (6) Capture quality premiums of 10-25% by producing standardized beans that meet buyer specifications; (7) Mitigate production risks through bundled insurance covering yield, price, and climate-related shocks; and (8) Reduce post-harvest losses by accessing centralized processing.

Conclusion: Validating the Core Problem

The evidence across environmental scanning, competitive forces, and gap analysis converges on a single truth: The Philippine coffee problem is not a production problem—it is a **behavioral and system design problem**.

Farmers are not failing due to lack of support. They are failing because the system does not enforce alignment between **capital, action, and outcome**.

This validates the need for a platform like Roots2Beans—not merely as a growership program, but as an **integrated control system** that orchestrate behavior through:

- Structured financing
- Embedded monitoring
- Guaranteed offtake
- Centralized processing
- Incentive-driven participation

Only by addressing these root causes can the industry move from fragmented subsistence farming to a scalable, investable agricultural system.



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Sustainable Development Goals Alignment



Roots2Beans is intentionally designed to advance eight United Nations Sustainable Development Goals (SDGs) through its integrated, smallholder-focused coffee growership platform. Below is an itemized mapping of how the platform's activities, outcomes, and systemic interventions directly contribute to each targeted SDG.

SDG 1: NO POVERTY

End poverty in all its forms everywhere

- Income elevation: Lift smallholder farmers from below the poverty threshold (₱129,072/year) to ₱533,542/year through guaranteed offtake, quality premiums (10-25%), and yield improvement (0.54 → 1.0-1.2 MT/ha), validated by Project Coffee+ results.
- Risk mitigation: Provide in-kind input financing with harvest-aligned repayment and bundled insurance (yield, price, climate) to protect farmers from catastrophic income shocks.
- Asset building: Enable farmers to invest in farm rehabilitation (pruning, grafting, replanting) and productive assets (tools, equipment) through stable cash flow and access to credit.



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- Inclusive participation: Prioritize engagement of marginalized smallholders (1-2 ha farms, average age 57) who are most vulnerable to poverty traps.

SDG 2: ZERO HUNGER

End hunger, achieve food security and improved nutrition, and promote sustainable agriculture

- Domestic supply enhancement: Contribute to national coffee self-sufficiency by increasing local production from 15% toward the roadmap target of 44.58% by 2025, reducing reliance on imports.
- Sustainable intensification: Promote Good Agricultural Practices (GAP) and regenerative agriculture to improve soil health, water efficiency, and long-term land productivity without expanding into forested areas.
- Nutrition-sensitive intercropping: Encourage diversified farming systems (coffee + fruit trees, vegetables, livestock) to improve household food security and dietary diversity.
- Post-harvest loss reduction: Minimize waste through centralized processing, controlled drying, and quality-assured storage, ensuring more harvested beans reach consumers.

SDG 8: DECENT WORK AND ECONOMIC GROWTH

Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

- Fair labor practices: Ensure quality-linked pricing, transparent contracts, and timely payments that provide decent, predictable income for smallholder farmers.
- Rural job creation: Generate employment through modular processing hubs, nursery operations, logistics coordination, and agronomist-led extension services in coffee-producing regions.
- Youth agripreneurship: Reverse aging farmer demographics by engaging youth through digital tools, peer-mentor networks, and business skills training (Farmer Business School model).
- MSME development: Strengthen farmer cooperatives and associations to enable collective bargaining, shared infrastructure access, and enterprise growth.

SDG 10: REDUCED INEQUALITIES

Reduce inequality within and among countries

- Empower marginalized producers: Provide smallholder farmers—often excluded from formal value chains—with access to quality inputs, technical support, financing, and guaranteed markets.
- Gender and Indigenous inclusion: Intentionally engage women and Indigenous communities in nursery management, quality control, and leadership roles within clustered production systems.
- Geographic equity: Focus deployment in underserved coffee-growing regions (SOCCSKSARGEN, Davao, BARMM) to reduce rural-urban development gaps.
- Equitable value distribution: Implement transparent pricing mechanisms and profit-sharing models that ensure farmers capture a fair share of downstream value.

SDG 12: RESPONSIBLE CONSUMPTION AND PRODUCTION

Ensure sustainable consumption and production patterns



Roots2Beans

- Sustainable production standards: Enforce GAP compliance and regenerative agriculture practices (10 practices: agroforestry, soil conservation, integrated pest/nutrient/weed management, efficient water use, intercropping, waste valorization, landscape action, rejuvenation) across all platform farms.
- Waste valorization: Convert coffee by-products (husks, pulp, wastewater) into organic fertilizers, bioenergy, or value-added products to minimize waste and create circular economy loops.
- Traceability and transparency: Deploy digital traceability systems with DNA authentication to ensure product authenticity, prevent adulteration, and enable informed consumer choice.
- Efficient resource use: Optimize input application (fertilizers, water, pesticides) through site-specific recommendations and digital monitoring to reduce environmental footprint.

SDG 13: CLIMATE ACTION

Take urgent action to combat climate change and its impacts

- Climate-resilient varieties: Distribute drought-tolerant, disease-resistant coffee plantlets developed through breeding programs to enhance farm-level adaptation.
- Agroforestry and carbon sequestration: Integrate shade trees and border vegetation into coffee farms to improve microclimate regulation, soil moisture retention, and carbon storage.
- GHG emission reduction: Quantify and report 20-40% lower greenhouse gas emissions per kg of green coffee through regenerative practices, with potential access to carbon credit markets.
- Farmer resilience building: Bundle crop insurance, early warning systems, and adaptive agronomic practices to protect livelihoods against climate shocks.

SDG 15: LIFE ON LAND

Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

- Sustainable land conversion: Transform idle or degraded agricultural land into productive, sustainably managed coffee farms—avoiding encroachment into primary forests.
- Biodiversity conservation: Promote shade-grown coffee systems and riparian buffers that support pollinators, birds, and native flora while maintaining coffee productivity.
- Soil health restoration: Implement cover cropping, organic fertilization, and reduced tillage to reverse soil degradation, improve fertility, and prevent erosion.
- Forest landscape integration: Align with DENR's National Greening Program (86,000 ha allotted for coffee) to ensure coffee expansion complements, rather than competes with, reforestation goals.

SDG 17: PARTNERSHIPS FOR THE GOALS

Strengthen the means of implementation and revitalize the global partnership for sustainable development



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- *Multi-stakeholder collaboration*: Forge strategic partnerships with DA-HVCDP, DTI, LGUs, GIZ, Nestlé, farmer groups, and SUCs to align resources, expertise, and policy support.
- *Blended finance mobilization*: Leverage public funds (₱449M DA budget), private capital, and development grants to de-risk investment and accelerate scalable impact.
- *Knowledge sharing and capacity building*: Deploy peer-mentor networks, digital learning platforms (Agrinest), and Farmer Business School training to disseminate best practices across regions.
- *Policy alignment and advocacy*: Engage with the newly created Coffee Industry Development Office (CIDO) to ensure Roots2Beans' model informs national strategy, regulatory reform, and monitoring frameworks.

INTEGRATED IMPACT FRAMEWORK

SDG	Primary Roots2Beans Lever	Measurable Indicator	Target (Year 3)
1. No Poverty	Income stability via guaranteed offtake	% farmers above poverty threshold	100%
2. Zero Hunger	Domestic supply enhancement	MT GCB contributed to national production	100-600 MT
8. Decent Work	Fair pricing & rural employment	Avg. farmer income (₱/year)	₱533,542
10. Reduced Inequalities	Inclusive smallholder engagement	% women/Indigenous participants	≥30%
12. Responsible Production	GAP & regenerative adoption	% farms certified sustainable	100%
13. Climate Action	Climate-resilient practices	GHG reduction (kg CO ₂ e/kg GCB)	20-40%
15. Life on Land	Sustainable land conversion	ha of idle land converted to coffee	100-500 ha
17. Partnerships	Multi-stakeholder coordination	# active institutional partners	≥10



Roots2Beans

Marketing Research Project

Comprehensive Working Paper

Research blueprint for a two-sided farmer-to-institutional-buyer integration model

PURPOSE This is the full substance reservoir for the final GMKTG261 presentation and an implementation guide for a future SMI-commissioned study. It is intentionally not organized slide by slide. LT4A is designing the research; it is not conducting fieldwork or presenting research findings in this course output.

Prepared for GMKTG261 - Developing Marketing Strategy Through Research

LT4A Marketing Research Team

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Version 4.0 | 25 August 2026

Source base: approved Concept Statement, Market Research Brief v5.2, GMKTG261 course materials, project rubric, authorized SMI records, and independently traceable industry and methodological sources



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Working document status and use

WORKING STATUS This document is a prospective market-research protocol. It distinguishes source-established context, inherited estimates requiring verification, research hypotheses, management standards, and future outputs. It contains no fieldwork findings and makes no claim that farmer adoption, GAMMOT performance, income stability, operating feasibility, or buyer purchase behavior has already been demonstrated.

Label used in this paper	Meaning	How it may be used
Source-established	Directly stated in an allowed project source, an authorized SMI record, or a traceable primary/academic source.	May be used as project context, subject to the limitations of its source.
Verify before presentation	A dated market figure, buyer assertion, management declaration, or inherited deck claim not yet tied to an allowed source.	May appear only after direct verification with a current, traceable citation or authorized record.
Research hypothesis	A proposed relationship or expected result that has not yet been observed.	May be stated as a hypothesis, never as a finding.
Management standard	A threshold chosen to govern a proceed/revise/narrow/pause decision in the future commissioned study.	Must be approved before data collection; it is not a population fact.
Future study output	A finding, dataset, recommendation, or decision that can exist only after SMI or its research partner implements this protocol.	Describe as an expected deliverable, never as a result of the current course project.

Document map

1. Executive synthesis and rubric implications
2. Triangulated source foundation and reconciliation decisions
3. Industry opportunity, target market, and coordination failure
4. Roots2Beans concept, two-sided value proposition, GAMMOT, and theory of change
5. Management decision, research issue, research questions, and hypotheses
6. Methodological framework, research precedent, and rejected alternatives
7. Target population, sampling frame, sample-size defense, and quotas
8. Stimuli, instruments, fieldwork procedures, and analysis plan
9. Rigor, validity, reliability, ethics, governance, and bias control
10. Action standards, decision matrix, timeline, deliverables, and limitations
11. Panel-defense issues and remaining information required from SMI/LT4A
12. Appendices: exact neutral concept, calculations, definitions, and references



Roots2Beans

Executive synthesis

Roots2Beans should be researched as an integrated upstream-to-midstream operating model, not as a finished coffee product, cafe concept, specialty-coffee intervention, or stand-alone software application. Its service architecture links farmer support, evidence-based work verification, primary post-harvest activities, aggregation, buyer-specification alignment, traceability, and institutional market access. Green coffee bean (GCB) is the physical output. Commercial Robusta is the initial anchor specification to test, not the final definition of the entire product-market opportunity. Roasting, grinding, consumer packaging, brewing, cafes, retail, and consumer-brand marketing remain outside scope.

The proposed exchange has two farmer income components. During the production cycle, eligible and successfully onboarded farmers may receive milestone-based work compensation when prescribed farm activities are evidenced through GAMMOT and approved under transparent rules. At harvest, SMI purchases buyer-acceptable GCB from the farmer under a separate, clearly disclosed sale. On the buyer side, Roots2Beans must test whether qualified institutional buyers value specification alignment, quality assurance, traceability, reliable volume, predictable delivery, and lower coordination burden enough to pay a premium or provide an equivalent commercial commitment. Nestle Philippines is an anchor reference pathway, not automatically the sole target buyer; any asserted offtake is treated as a management declaration until an authorized document confirms its operative terms.

The GMKTG261 deliverable is the guide for how SMI should test this model. It does not generate participant data, findings, or a proceed/revise/narrow/pause recommendation. Those outputs belong to a later SMI-commissioned study. Actual enrollment, milestone compliance, payment timeliness, yield, income stability, GCB purchase and delivery, and season-long GAMMOT performance belong to a still-later operational pilot.

RECOMMENDED CORE DESIGN For future commissioning: a pragmatic exploratory sequential multiphase mixed-methods study consisting of buyer-landscape and documentary review; approximately 12-18 buyer/ecosystem KIIs across 8-12 qualified organizations; separate buyer concept, requirement, and commercial-value testing; farmer FGDs and private IDIs; a bounded n=240 farmer survey with realistic competing-offer scenarios; two-round role-based GAMMOT testing; and an integrated buyer-farmer fit, legal, operating, cash-flow, and decision review.

Rubric implications

The course gives only 20 minutes for the presentation and allocates 60% of proposed presentation time to research design and action standards, compared with 10% for the industry/market, 10% for the concept, and 20% for the brief and hypotheses. The scoring rubric separately assigns 15 points to the research question, 25 to methodological fit, 25 to rigor, 25 to data collection and analysis, and 10 to presentation quality and panel engagement. The working paper therefore gives more depth to sampling, method choice, instruments, analysis, rigor, ethics, and action standards than to market storytelling.



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- The research question must be specific, answerable, bounded, and tied to a genuine innovation challenge.
- The chosen qualitative and quantitative approaches must be named, supported by analogous research, and preferred over realistic alternatives for explicit reasons.
- Rigor must be procedural: credibility, transferability, dependability, confirmability, internal validity, external validity, construct validity, and reliability need concrete safeguards.
- Sampling, sample size, instruments, analysis, and ethics must be sufficiently detailed for implementation and panel defense.
- The deck ultimately built from this paper should preserve the flow from problem to method to decision implications while staying within time.

1. Triangulated foundation

1.1 What each source contributes

Source	Primary contribution	What it does not establish
LT4A Concept Statement	The approved unbranded, farmer-facing promise: Company X begins with the first seedling and supports farmers from farm planning through post-harvest preparation.	It intentionally omits brand cues, buyer commitments, financing mechanics, monitoring, data rights, repayment, delivery obligations, and GAMMOT.
Market Research Brief v5.2, 06 Aug 2026	The most current formal decision scope, research audiences, sequential mixed-methods design, approved geographic coverage, initial samples, six-week timing, deliverables, governance, and preliminary action standards.	It leaves the farmer-adoption threshold and operational/economic ceilings undefined; its farmer survey remains directional at n=100-120.
Current Roots2Beans working materials	Management declarations and the evolving articulation of the two-sided model, GAMMOT workflow, farmer payment architecture, Nestle anchor pathway, and proposed operating boundary.	They are design inputs, not independent evidence of market size, buyer demand, farmer adoption, offtake, price premium, or operating viability.
Authorized SMI and buyer records	Executed agreements, approved specifications, historical transactions, cost and cash-flow records, role maps, operating capacity, and GAMMOT process documentation when supplied.	Verbal statements, draft terms, and unauthorised summaries do not establish binding commitment or complete economics.
Primary industry and academic sources	Dated market context, buyer/farmer research precedent, measurement constructs, and methodological justification that can be traced independently.	External sources cannot establish the specific Roots2Beans offer, SMI capacity, or buyer commitment without project-specific evidence.
Market Research Project Rubric	Evaluation baseline and presentation weighting, with explicit emphasis on research question, method fit, rigor, sampling, analysis, ethics, and panel defense.	It does not determine business thresholds; those must come from SMI risk tolerance and operating economics.

1.2 Triangulation conclusion

The approved concept and Brief v5.2 are complementary but not interchangeable. The neutral concept provides the controlled initial farmer stimulus; the brief provides the formal research decision and proposed fieldwork architecture; authorized SMI records supply project-specific operating inputs; and independent primary or academic sources support industry and method claims. The current Marketing Research Project converts these allowed inputs into a protocol.



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Only approved project materials, authorized SMI records, course sources, independently traceable primary or academic sources, and evidence generated by the commissioned study may support claims. Any unsupported market fact, segment description, observation, commercial assumption, or proposed threshold must remain an assumption to test or be removed.

The neutral concept should remain neutral during the first exposure. Full commercial terms should be disclosed only after initial comprehension and appeal are measured. GAMMOT should then be evaluated as a task-based workflow, not merely described. This sequence permits the team to observe whether apparent interest survives the disclosure of obligations and whether stated confidence is consistent with actual task performance.

1.3 Reconciliation decisions required

Issue	Current sources	Working-paper recommendation
Geography	Brief v5.2 identifies Agusan del Norte and Davao Region.	Use these areas as the initial farmer-research boundary unless SMI formally changes the brief. Buyer organizations may sit elsewhere if they procure Philippine GCB relevant to the pilot corridor.
Farmer survey	Brief v5.2: n=100-120, directional.	Recommend n=240 for eight planned quota cells and defensible subgroup comparisons. Record this as a formal change requiring approval; do not imply national representation.
Buyer/stakeholder KIIs	Brief: approximately 6-8 buyer KIIs; team review requires two-sided value and STP discovery.	Expand to approximately 12-18 buyer/ecosystem KIIs across about 8-12 qualified buyer organizations and three to four buyer archetypes. Nestle remains an anchor reference case, not the entire demand sample.
Farmer qualitative	Brief: four FGDs of 6-8.	Retain four FGDs and add approximately eight IDIs for seasonal cash gaps, intercropping/labor conflict, payment disputes, privacy, side-selling, trust, and other topics that participants may not discuss candidly in groups.
GAMMOT sample	Brief: 20-30 farmers; the system also affects validator, procurement, and payment roles.	Use 24 farmer participants in two rounds of 12 and include the minimum fresh role-holders needed to test validation, procurement, payment, correction, and audit handoffs. Keep season-long operating use for the later pilot.
Farmer threshold	Brief: SMI-approved minimum, not specified.	Use provisional numerical standards in this paper for discussion; SMI must approve the final threshold before fieldwork.
Buyer value and economics	Buyer premium, offtake, and willingness to change suppliers remain unverified.	Test price premium and equivalent commitments such as minimum volume, longer term, faster payment, advance financing, shared traceability cost, or reduced rejection exposure. Fully loaded buyer-derived value must cover the farmer offer and operating system.
Legal status and operations	Brief requires viability but gives no floors or capacity ceilings; management declarations add milestone compensation and separate SMI GCB purchasing.	SMI must supply counsel-cleared terms, working-capital timing, costs, margin, staffing, and downside limits before full-term stimuli and pilot approval.

1.4 Source-governance rules for v4.0

Potential input	Permitted treatment	Prohibited treatment
Concept Statement and Brief v5.2	Use as the approved project definition, neutral concept, formal research scope, and initial method baseline.	Do not treat proposed benefits, samples, or thresholds as completed findings.



Roots2Beans

Potential input	Permitted treatment	Prohibited treatment
Management and LTmate declarations	Use to identify assumptions and design requirements, including two payment streams, the anchor-plus-market buyer logic, and GAMMOT's intended role.	Do not cite declarations as proof of buyer demand, farmer preference, offtake, premium, or economic viability.
SMI internal records	Use only when authorized, current, attributable, and sufficiently complete; classify contract, specification, cost, capacity, or transaction evidence by strength.	Do not equate a verbal assurance, draft document, or relationship history with an executed commitment.
Industry and market claims	Source directly to PSA, DA/PCAF, BAFS, authorized buyer publications, or another traceable primary source with date, geography, definition, and unit.	Do not use superseded internal material as an intermediate citation or origin of fact.
Farmer and buyer insights	Generate through the future KIIs, FGDs, IDIs, survey, observed tasks, authorized records, and explicit competing-evidence review.	Do not reuse earlier exploratory observations or interview conclusions as findings of this study.
Commercial scenarios	Build from SMI-approved inputs and show the formula, timing, sensitivity, and downside assumptions.	Do not inherit unverified premium, yield, volume, default, revenue, or scale figures from superseded internal material.
Superseded internal material	Use only the approved concept, Brief v5.2, authorized SMI records, course sources, and independently traceable evidence identified in this paper.	Do not list, cite, quote, paraphrase, footnote, or use excluded material as evidence in v4.0 or the final deck.

2. Industry opportunity and evidence boundaries

2.1 Market-system opportunity

The project starts from a market-system hypothesis: qualified institutional buyers may face supply reliability, specification, traceability, aggregation, timing, and coordination problems, while farmers may face seasonal liquidity, production-support, market-access, payment, and bargaining constraints. Roots2Beans proposes to coordinate these functions. The future research must determine whether these problems are material for each side, whether the proposed service bundle is preferable to current alternatives, and whether buyer-derived value can support the farmer offer and SMI's operating costs.

The market opportunity should therefore be expressed as an evidence-backed supply-conversion problem rather than as an oversized national revenue claim. National figures can establish context, while the research decision remains bounded to a serviceable pilot catchment in Agusan del Norte and the Davao Region.

2.2 Evidence ledger for market claims

Claim category	Required source or evidence	Presentation rule
National or regional GCB production, area, price, and variety mix	Current PSA releases or tables; DA/PCAF roadmap for strategic targets with the roadmap period shown.	State the reference period, geography, unit, and whether the number is actual, preliminary, target, or scenario.
Institutional demand or local-sourcing interest	Authorized buyer publication, procurement record, executed agreement, or independently documented market source.	Do not infer Roots2Beans demand from general coffee consumption or a buyer's broad sustainability statement.



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Claim category	Required source or evidence	Presentation rule
Nestle anchor pathway	Authorized SMI/buyer document plus knowledgeable role-holder verification of product, volume, term, acceptance, delivery, price, payment, rejection, and termination.	Describe as an anchor reference or management-declared pathway until the evidence supports stronger wording.
Buyer premium or equivalent commitment	Buyer concept/requirements interviews, structured commercial-value testing, and an authorized next-step or term sheet.	Treat willingness to pay as a hypothesis; report both price and non-price value such as volume, contract term, financing, and payment speed.
Farmer value, acceptance, and retention	Future farmer qualitative work, n=240 survey, teach-back, EOI, and realistic competing-offer scenarios.	Do not equate concept liking with informed onboarding, delivery, or loyalty.
Yield, default, margin, scale, or revenue scenario	SMI-approved model with traceable inputs, formula, timing, sensitivity, capacity ceiling, and downside cases.	Label as a management scenario until observed pilot behavior and transactions exist.

2.3 Priority research market

The priority research market is not a predetermined farmer label or a Nestle-only supply route. It is the set of feasible buyer-specification-farmer corridors within which Roots2Beans could coordinate a commercially meaningful transaction. The initial farmer catchment remains Agusan del Norte and the Davao Region, while the buyer universe includes qualified institutional organizations that directly procure or specify Philippine GCB at a scale relevant to a controlled pilot.

Commercial Robusta and farmers with approximately 1-3 hectares may be used as initial screening or quota hypotheses only when supported by the brief and SMI operating intent. The research should measure actual buyer requirements, farmer capability and burden, selling behavior, seasonal liquidity, support needs, trust, digital readiness, and response to competing offers. Segments and the recommended corridor must emerge from observed variables and feasible value matching rather than from labels assigned before fieldwork.

2.4 Two-sided research audience

- Farmer-side adopters: active smallholders, agrarian reform beneficiaries, farmer groups, cooperatives, and landowners who could accept production, milestone-verification, data, GCB sale, and delivery obligations.
- Qualified institutional GCB buyers: processors, manufacturers, exporters, aggregators, roasters, or other organizations that directly procure or specify GCB at a pilot-relevant scale. Nestle is one anchor reference case within this population.
- Buyer decision makers and specifiers: procurement, technical acceptance/quality, supply planning, logistics, finance, contracting, sustainability, and traceability roles with knowledge of requirements and authority to evaluate a next step.



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- Operational enablers: SMI field staff, agronomists, community-processing actors, financiers, technology owners, and partner cooperatives. They are not the primary demand sample but are essential for feasibility and economics inputs.

2.5 Alternatives and competitive frame

Roots2Beans must be compared with realistic channels and integrators, not an empty market. Trader-led channels may offer speed, immediate cash, and opportunistic price advantages. Cooperatives and direct-buyer arrangements may offer aggregation and market access but vary in governance and execution. Contract growership can bundle support and assured purchase but may create dependency or unfair terms. Stand-alone traceability tools do not by themselves solve seasonal liquidity, agronomy, aggregation, working capital, or buyer commitment. The differentiation to test is the coordinated architecture and whether its total value remains attractive when another buyer offers a higher spot price or faster cash.

Comparable entity	Visible market role	Defensible Roots2Beans distinction
Equilibrium Intertrade / Curve Coffee Collaborators	Related enterprise/brand with grower, roasting, selling, cafe, traceability, and specialty-coffee ecosystem activities.	Closest broad commercial benchmark, but Roots2Beans is testing an institutional GCB integration and evidence-to-payment architecture rather than a consumer/specialty monetization center.
Luzon Coffee	Agroforestry coffee producer with farming, drying, provenance, and specialty-market emphasis.	Roots2Beans is designed as a scalable farmer-network integrator and GCB procurement system, not mainly a single-origin or specialty producer/brand.
Coffee Heritage Project	Farmer-development and Philippine coffee heritage initiative with on-farm investment, technical support, and market-building partnerships.	A useful farmer-development benchmark; Roots2Beans adds a commercial operating model in which GAMMOT verifies payable milestones and SMI separately buys GCB against documented offtake.

These distinctions concern each entity's visible market-facing emphasis, not a claim that the comparators operate only downstream. Equilibrium/Curve, Luzon Coffee, and Coffee Heritage Project all show upstream or farmer-support elements. The future study should test whether Roots2Beans' specific compensation, data, procurement, and offtake bundle creates incremental value and acceptable obligations.

3. Business problem, research issue, and value added

3.1 Business problem to carry into solution validation

PROBLEM CARRIED FORWARD Roots2Beans responds to a proposed coordination gap between farmers who need workable production-cycle support and market terms, and institutional buyers who may need reliable, specification-aligned, traceable, and efficiently coordinated GCB. The coordination gap is treated as a management hypothesis to validate—not as a proven finding—and the research is designed to determine whether a specific two-sided solution creates and captures enough value to justify a controlled pilot.

3.2 Research issue

The future study must determine whether farmers regard milestone-based work compensation and the separate GCB purchase as useful, fair, understandable, and competitive with current



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channels; which buyers value the proposed supply, assurance, traceability, and coordination services; what premium or equivalent commitment they will provide; whether GAMMOT can support payable evidence and traceability without unacceptable error or surveillance risk; and whether SMI can fund and execute the matched buyer-specification-farmer corridor under downside conditions.

3.3 Value added of this research

- Converts a broad industry diagnosis into an implementation-ready research blueprint and predetermined investment gates for a bounded regional pilot.
- Identifies the most viable buyer-specification-farmer corridor instead of prespecifying Nestle, commercial Robusta, or one farmer label as the final target market.
- Tests buyer willingness to pay a premium or provide an equivalent commercial commitment and connects that captured value to the fully loaded farmer and operating proposition.
- Separates the current protocol, the future commissioned study, and the later operational pilot so no anticipated output is misrepresented as a finding.
- Separates initial concept appeal from informed willingness after full milestone-payment, verification, GCB sale, data, rejection, correction, appeal, and exit terms.
- Adds observed GAMMOT payment-verification tasks to stated technology intention, reducing the risk of recommending the workflow from self-report alone.
- Requires documentary offtake evidence, legal review, and downside working-capital capacity; farmer enthusiasm cannot compensate for failure of those gates.

3.4 Innovation challenge

Dimension	Question the research must answer
Desirability	Which farmer and buyer segments perceive meaningful incremental value relative to current arrangements and competing offers?
Usability	Can intended users complete the minimum GAMMOT workflow accurately, independently, and with acceptable effort?
Viability	Can buyer premium or equivalent commercial value cover the two farmer payment streams and fully loaded technology, quality, aggregation, financing, and operating costs?
Feasibility	Can SMI recruit, onboard, verify, pay, support, convert cherries to buyer-acceptable GCB, aggregate, store, trace, and deliver at the proposed pilot scale?

4. The Roots2Beans innovation under test

4.1 The neutral concept

The approved unbranded concept presents Company X as a long-term partner that begins before harvest: supplying quality planting materials, farm planning, estate-development support, growership partnerships, technical guidance, modern agricultural technology, market access, and post-harvest preparation. It is emotionally framed around hope, family investment, and building



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stronger Filipino coffee farms from the first seedling. The exact text is reproduced in Appendix A.

STIMULUS DISCIPLINE This concept is appropriate for the first exposure because it explains the promise without naming Roots2Beans or overloading respondents with commercial details. It is not sufficient for measuring enrollment or transaction readiness. Those measures must follow a standardized full-terms disclosure.

4.2 Full operating model

The complete working model contains the following interdependent components, all subject to validation and final SMI approval:

- Farmer and farm registration, eligibility verification, mapping, and baseline profiling.
- Quality planting materials, rehabilitation or estate-development planning, and GAP-aligned production protocols.
- Technical guidance, field monitoring, farmer training, corrective support, and milestone definitions compatible with household labor and legitimate intercropping.
- Milestone-based work compensation for approved prescribed activities, with transparent value, timing, required evidence, validation, rejection, correction, appeal, deduction, suspension, and exit rules.
- GAMMOT/NFC activity records linking authorized users, farms, trees or lots, tasks, time, evidence status, approval, and payment status.
- Cherry harvesting under the applicable buyer pathway; the declared Nestle anchor route uses 'pick all,' while another buyer may require a different commercially justified practice.
- Primary post-harvest processing or conditioning that converts cherries to buyer-acceptable GCB, followed by buyer-required acceptance checks, storage, aggregation, and lot formation.
- A separate SMI purchase of buyer-acceptable GCB from farmers, with explicit volume, acceptance, delivery, rejection, price formula, deductions, and payment conditions.
- An anchor-plus-contingency buyer architecture specifying covered volume, duration, specification, acceptance, delivery, price or equivalent value, rejection, payment, termination, and force-majeure terms; Nestle is the anchor reference pathway, not the entire market.
- Authorized traceability and performance information for farmers, SMI, partners, financiers, and buyers under defined data-governance rules.



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OPERATING BOUNDARY Roots2Beans stops at delivery of buyer-acceptable GCB to a qualified institutional buyer. Roasting, grinding, consumer packaging, finished-coffee branding, cafes, brewing, and retail are excluded. Commercial Robusta is the initial anchor specification, while the research tests whether another feasible GCB specification creates a stronger corridor. The anchor route does not presume specialty grading or premium quality.

4.3 Two-sided value proposition

Farmer value to validate	Buyer value to validate
Production-cycle income from approved milestone work, separate from harvest proceeds	GCB aligned with an approved specification and acceptance process
Farm planning, GAP support, and sustained technical guidance	Earlier visibility of production, volume, and delivery risks
Potential access to planting materials, inputs, services, or credit under disclosed terms	Farm/lot origin and buyer-relevant protocol documentation
Transparent evidence, validation, correction, appeal, and payment status	More accountable records and exception handling
SMI purchase of buyer-acceptable GCB under a separate, disclosed sale	Aggregation, minimum acceptance consistency, storage, and delivery coordination
Continued livelihood diversification where compatible with agronomy and milestones	Reduced sourcing, monitoring, exception, and transaction-coordination burden
A total-value proposition capable of competing with traders' price and immediate cash	A service package that may justify premium, minimum volume, longer term, faster payment, financing, or shared assurance cost

The two-sided rule is fundamental: if only one side perceives value, Roots2Beans does not converge. Farmer adoption without credible demand creates exposure and mistrust; buyer interest without acceptable farmer terms creates a supply promise that cannot be delivered.

4.4 GAMMOT's role

GAMMOT is the workflow, evidence, and traceability layer, not the entire Roots2Beans business model. It is intended to provide SMI with the baseline evidence for approving milestone-based work compensation. Its minimum workflow should register the farmer/farm, identify the production unit, link the appropriate identifier, record prescribed work and evidence, show validation status, support correction and appeal, link an approved milestone to payment status, flag exceptions, and connect harvest/GCB lots to authorized traceability information. The future study must evaluate effectiveness, comprehension, record integrity, trust, burden, and perceived surveillance risk; a successful NFC tap alone proves none of these.

4.5 Theory of change

If eligible farmers receive clear and fair milestone-based compensation for prescribed farm work that is verified through GAMMOT, the long income gap before coffee harvest may become less burdensome. The expectancy chain must be credible: effort leads to acceptable evidence, acceptable evidence leads to approval, and approval leads to timely payment, with correction and appeal when records are disputed. If SMI also buys buyer-acceptable GCB under transparent terms, the two-part income arrangement may improve perceived value and retention relative to



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competing channels. On the other side, if Roots2Beans credibly reduces buyer uncertainty over specification, traceability, volume, timing, and coordination, qualified buyers may offer a price premium or equivalent commercial commitment. The model is viable only when that captured buyer value can sustain farmer benefits and fully loaded operations. Actual income stability, retention, quality, delivery, and economics can be determined only in the later operational pilot.

The theoretical base combines two-sided-market logic; transaction-cost economics; value-based pricing; income/consumption smoothing and liquidity constraints; expectancy theory; commitment-trust; principal-agent and information-asymmetry controls; contract-farming and side-selling logic; and technology acceptance/task usability. These lenses explain both the potential value and the risks: weak buyer willingness to pay, delayed or rejected farmer payments, opaque monitoring, record error, buyer rejection, switching to immediate-cash channels, working-capital shortfall, or excessive control can reverse the intended benefit.

4.6 Separate buyer and farmer exposure architecture

Audience and exposure	Purpose	What may be measured
Farmer 1 - neutral concept	Measure spontaneous comprehension and initial relevance without brand or complete terms.	Open recall, relevance, credibility, differentiation, questions, concerns, and initial willingness.
Farmer 2 - full exchange	Disclose milestone work, verification/payment, GCB purchase, data, intercropping, delivery, rejection, competing-offer, and exit terms.	Comprehension, fairness, trust, conditional participation, switching threshold, onboarding step, objections, and change from initial willingness.
Buyer 1 - neutral integrator concept	Test whether the proposed service solves a material procurement problem before showing a price or named anchor.	Problem relevance, differentiation, credibility, required specification, proof burden, and initial evaluation.
Buyer 2 - approved service packages	Vary feasible specification, assurance, traceability, volume, delivery, contract, price/premium, payment, financing, and risk terms.	Trade-offs, premium or equivalent commitment, decision authority, objections, and willingness to take a documented commercial next step.
Role-based GAMMOT workflow	Observe farmer, validator, procurement, and payment handoffs from evidence capture to approval, payment status, traceability, correction, and audit.	Independent task completion, errors, time, record integrity, access control, trust, burden, and improvement requirements.

5. Management decision, research questions, and hypotheses

5.1 Management decision

DECISION REQUIRED Which qualified buyer segment, GCB specification, farmer profile, and service configuration should SMI prioritize for a controlled Roots2Beans pilot, and can the value created for buyers support the farmer benefits, technology, operations, and risks required to deliver it? The current LT4A project designs that decision process; it does not issue the decision.

5.2 Primary research question

Under what conditions can Roots2Beans create sufficient and compatible value for eligible coffee farmers and qualified institutional GCB buyers, and which buyer-specification-farmer configuration should SMI prioritize for a controlled regional pilot?



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5.3 Subquestions

1. Farmer value: Which seasonal-income, production-support, financing, technical-assistance, and market-access problems create meaningful farmer demand for Roots2Beans?
2. Buyer value: Which specification, quality-assurance, traceability, volume, delivery, reliability, and coordination problems create meaningful institutional-buyer demand?
3. Buyer willingness to pay: Are qualified buyers willing to pay a premium or provide an equivalent commercial commitment for specification-aligned, quality-assured, traceable, and more reliable GCB?
4. Farmer exchange and retention: Do milestone compensation, support services, transparent GCB purchasing, and market access create enough total value for farmers to remain when traders or other buyers offer higher prices or faster cash?
5. GAMMOT and process readiness: Can farmers, field validators, procurement personnel, and payment personnel complete the evidence-to-payment and traceability workflow independently and correctly?
6. Economic and ecosystem viability: Can buyer value, farmer value, technology, buyer coverage, legal governance, operating capacity, and downside funding converge into a viable controlled pilot?

5.4 Directional hypotheses and governing proposition

Code	Working statement	Required evidence
H1 - Farmer value	Farmers experiencing larger seasonal cash gaps, input constraints, weak technical support, or uncertain market access will perceive greater value in the Roots2Beans bundle.	Cash-flow and livelihood calendars; current-channel evidence; survey measures of needs, bundle value, and informed willingness.
H2 - Fair exchange	Clear milestone rules, timely compensation, transparent GCB purchasing, correction/appeal, and respect for livelihood activities will increase farmer trust and informed willingness.	Teach-back, term reactions, trust/fairness scales, paired concept-to-full-terms change, and qualitative explanations.
H3 - Buyer value	Buyers facing unreliable volume, inconsistent specification compliance, weak traceability, or high coordination cost will perceive greater value in Roots2Beans.	Buyer problem evidence, requirement matrix, current sourcing burden, concept response, and authorized records.
H4 - Buyer commercial value	Buyer willingness to pay a premium or provide an equivalent commitment will increase when Roots2Beans credibly improves specification assurance, traceability, volume reliability, delivery predictability, and accountability.	Structured price/premium ladder, package trade-offs, procurement constraints, and documented commercial-next-step evidence.
H5 - Farmer retention	Retention will be stronger when milestone compensation, support, fair GCB price, reliable purchase, and reciprocal commitment outweigh higher spot prices or faster cash from competing buyers.	Realistic competing-offer scenarios varying price gap, payment speed, prior support, contract fairness, and market certainty.
H6 - GAMMOT readiness	After one formative redesign, at least 80% of fresh validation users will independently complete every critical role-appropriate task, with no unresolved Severity-1 issue.	Round-2 task-level completion, error, assistance, time, record/payment comprehension, access control, and debrief evidence.



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Code	Working statement	Required evidence
H7 - Economic sufficiency	Buyer premium or equivalent commercial value must cover the fully loaded farmer-support, technology, aggregation, quality-assurance, traceability, financing, and operating costs under approved downside conditions.	Authorized buyer commitments, cost model, monthly cash bridge, sensitivity cases, and owner-approved sustainability floor.
P8 - Two-sided convergence	SMI should proceed only when farmer acceptance, buyer commitment, specification fit, GAMMOT, legal safeguards, operations, and downside economics pass together.	Predetermined joint decision matrix retaining contradictory and unfavorable evidence.

5.5 Claim boundaries

- This document can guide a future study; it cannot itself support a pilot decision because it contains no primary research results.
- The future study can support a bounded regional pilot decision; it cannot estimate national farmer adoption.
- Stated willingness and a nonbinding expression of interest are stronger than concept liking but weaker than sustained enrollment, milestone completion/payment, or GCB delivery behavior.
- Buyer concept appeal or stated premium tolerance is not committed demand. A buyer counts toward coverage only through authorized evidence of a defined commercial next step, product, volume, timing, and value.
- Task-based usability can establish payment-verification workflow readiness under test conditions; it cannot establish season-long data completeness, work compliance, payment performance, or field support burden.
- Nestle is an anchor reference pathway, not the predetermined sole target. The label 'guaranteed offtake' may be used only if the arrangement is documented, authorized, and complete enough to establish covered volume and operative conditions.
- Commercial Robusta is an initial reference specification. The future study must not rule out another GCB specification that creates a stronger buyer-farmer fit and remains operationally feasible.
- Any claim that cannot be supported by an approved project source, authorized record, independently traceable source, or future-study evidence must remain an assumption or be removed.
- The research cannot determine whether farmers are employees, contractors, growers, or another legal category. Philippine counsel must review the actual relationship; describing payment as per-task or per-milestone does not settle legal status.
- Indicative economics support an investment screen; actual income stability and unit economics require observed pilot payments, costs, yield, GCB acceptance, purchase, delivery, and buyer collection timing.



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5.6 Legal terminology and classification safeguard

The working paper uses 'milestone-based work compensation' or 'task-based growership payment,' not 'salary,' pending legal advice. Philippine employment classification depends on the total relationship. The Supreme Court's four-fold test considers selection and engagement, payment of wages, power of dismissal, and the power to control conduct, with control commonly the most significant factor; the payment mode alone is not decisive. Before the full-terms stimulus is frozen, counsel should review who prescribes the work, supervises or disciplines farmers, approves/rejects evidence, controls schedule and method, owns tools/inputs, bears production risk, and can terminate participation.

6. Methodological framework and justification

6.1 Formal design

The recommended design is a pragmatic exploratory sequential multiphase mixed-methods study with an embedded task-based usability component and a final decision-synthesis phase. It is pragmatic because the method is selected around a management decision rather than allegiance to one philosophical tradition. It is exploratory sequential because early qualitative work identifies buyer requirements, farmer language, meanings, risks, and terms that must shape the survey. It is multiphase because the study includes distinct commercial, adoption, usability, and integration workstreams.

6.2 Why this design fits

- Anchor-path procurement/acceptance conditions and farmer concerns are context-specific and must be explored before they can be measured consistently.
- Buyer segmentation and commercial-value discovery must precede corridor selection because the most viable buyer, specification, and contract package are not yet fixed.
- A survey is necessary to estimate directional prevalence within the bounded catchment and compare predefined profile groups, but it cannot explain why respondents accept or reject terms.
- Observed GAMMOT tasks are necessary because intention, confidence, or satisfaction cannot demonstrate successful use.
- Integration is necessary because the management decision depends on convergence across two market sides, a technology layer, operations, and economics.

6.3 Analogous research precedent

Analogous study	Methodological precedent	Roots2Beans adaptation
Anderson, Jain, and Chintagunta (1993), business-market value	Customer-value assessment in business markets emphasizes translating differentiated performance into economic value relative to the buyer's next-best alternative.	Supports testing both per-kilogram premium and equivalent commercial commitments against the buyer's current sourcing costs, risks, and alternatives.



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Analogous study	Methodological precedent	Roots2Beans adaptation
Cimino et al. (2024), digital agricultural platforms	Survey of 192 small farmers using an extended UTAUT model; examined performance expectancy, effort expectancy, social influence, environmental uncertainty, and network prominence.	Supports measuring value/usefulness, effort, social/facilitating conditions, uncertainty, and adoption intention - while adding full-terms disclosure and observed use.
Abetu et al. (2024), bundled agricultural inputs and services	Conjoint experiment with 252 Ethiopian smallholders; showed that service bundles can improve preference but must be designed from smallholder trade-offs.	Supports a structured term-card or forced-choice exercise rather than asking only whether farmers like an all-benefit bundle.
Tadesse et al. (2024), Ethiopian coffee traceability	Literature review plus logistics audit mapped information flow and traceability maturity; identified affordability, awareness, stakeholder resistance, infrastructure, access, and policy barriers.	Supports mapping the minimum traceability workflow and testing readiness, burden, access, and governance rather than assuming a fully digital endpoint.
Chazovachii et al. (2021), centralized contract farming	Mixed methods using questionnaires, KIIs, document review, and FGDs to examine sustainability from farmer, extension, and firm perspectives; highlighted risks of unfavorable terms despite access to inputs and markets.	Supports two-sided evidence, private discussion of sensitive terms, document/term review, and explicit fairness and rejection conditions.

6.4 Alternatives considered and rejected

Alternative	Why it is insufficient for this decision
All-qualitative study	Provides depth and language but cannot show the directional prevalence of conditions or compare farmer profiles with adequate transparency.
Survey-only study	Risks measuring the wrong constructs, under-disclosing obligations, and confusing stated intention with observed usability or commercial behavior.
Technology-usability-only study	Could optimize GAMMOT while ignoring milestone fairness, the separate GCB sale, documentary offtake, legal status, and working capital.
National probability survey	Would answer a different question, require a credible national frame and substantially more resources, and still would not establish buyer commitment, operating feasibility, or observed use.
Experiment or randomized controlled trial	Premature because the operating model, treatments, terms, compliance mechanisms, and stable outcomes are not yet finalized; randomization would not solve concept and feasibility uncertainty.
Immediate 10-farm/1,000-tree pilot	Executes the proposed investment before the research has determined whether farmer, buyer, technology, operational, and economic conditions justify it.

6.5 Phase-by-phase design

Phase	Method and respondents	Primary output
0. Evidence and protocol	Current primary-source market/comparator review; classify buyer/offtake evidence; confirm farmer and GCB terms, legal review, sampling, ethics, and action standards using only the approved evidence base.	Approved protocol, source ledger, legal/commercial prerequisites, stimuli, screeners, field manuals, and decision rules.
1. Buyer landscape and value	Approximately 12-18 purposive KIIs across about 8-12 qualified organizations and three to four buyer archetypes; include Nestle as an anchor reference plus procurement, quality, planning, logistics, finance, contract, sustainability, and traceability roles.	Buyer segments, requirement matrix, sourcing problems, specification options, premium/equivalent-value evidence, authority map, and documented next-step candidates.
2. Farmer exploration	Four FGDs of 6-8 plus approximately eight IDIs across the two regions and varied selling/digital profiles.	Farmer language, needs, trust/fairness concerns, sensitive risks, term reactions, and survey-item development.



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Phase	Method and respondents	Primary output
3. Farmer measurement	Recommended n=240 structured survey after cognitive and field pretests; standardized neutral-concept/full-terms sequence and realistic competing-offer scenarios.	Directional prevalence, paired change, retention thresholds, profile differences, exploratory behavioral profiles, and qualified expression-of-interest pool.
4. GAMMOT process verification	Twenty-four intended farmer users in two fresh-sample rounds of 12, plus fresh validator, procurement, and payment role-holders needed to rehearse handoffs.	Task-level evidence-to-payment and traceability completion, errors, access control, comprehension, integrity, trust, burden, and fixes.
5. Value matching and decision	Buyer-farmer requirement joint display; buyer coverage and commercial-value evidence; GAMMOT, legal/governance, operating, and downside economic review; SMI decision workshop.	Future output: recommended buyer-specification-farmer corridor, proceed/revise/narrow/pause decision, minimum viable pilot, unresolved risks, and next evidence.

7. Target population, sampling, and sample-size defense

7.1 Units of inquiry

- Qualified institutional buyer organization is a co-primary market unit; role-holders provide requirement and decision-process evidence, while authorized documents provide stronger evidence of commitment.
- The SMI-Nestle pathway is an anchor reference case within the buyer landscape, not the sole commercial validation case.
- Farmer is a co-primary adoption and retention unit; the farm is the operating context.
- A GAMMOT task or record is a process observation, not an additional independent farmer respondent.
- The pilot catchment - not the entire Philippine coffee-farmer population - is the intended inference boundary.

7.2 Farmer eligibility

Recommended core eligibility criteria, to be finalized with SMI and field partners:

- Age 18 or older and personally authorized to decide about farm participation, prescribed work, evidence/data use, intercropping/labor allocation, and GCB sale.
- Active coffee farmer or farm decision-maker in Agusan del Norte or the Davao Region.
- Coffee is currently produced, rehabilitated, or planned at a scale relevant to the proposed pilot; approximately 1-3 ha and Robusta may be screened as working hypotheses, not fixed segment definitions.
- Able to complete the interview in the approved field language and provide informed consent.
- Not an SMI employee, interviewer, immediate fieldwork implementer, or person compelled to participate by a buyer, lender, cooperative, or government official.



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7.3 Buyer sampling

Commercial sampling is purposive, organization-based, and role-based. The working target is approximately 8-12 qualified buyer organizations and 12-18 buyer/ecosystem KIIs across three to four archetypes, subject to the accessible market universe. Include processors or manufacturers, exporters or aggregators, institutional roasters or other direct GCB buyers, and the Nestle anchor pathway. Cover procurement, technical acceptance/quality, supply planning, logistics, finance, contracting, sustainability, and traceability roles. One participant may cover multiple roles, but an organization-role-evidence matrix must expose gaps. The unit is not a vote count: authorized specifications, term sheets, transaction records, and commitments outrank verbal enthusiasm. Cafes or food-service chains qualify only when they directly procure or specify GCB at a meaningful scale.

7.4 Farmer qualitative sampling

Four FGDs of six to eight participants provide approximately 24-32 group participants. Groups should be separated by region and, where feasible, by selling arrangement or objective digital-readiness profile. Eight IDIs should deliberately include farmers with pronounced seasonal cash gaps, intercropping/food-production obligations, past payment or contract disputes, lower confidence discussing technology, privacy concern, or disagreement with the concept. Saturation should be documented by topic and profile rather than asserted from the target count alone.

7.5 Farmer survey sample-size recommendation

Brief v5.2 specifies approximately 100-120 farmers and correctly limits the result to directional evidence. That sample may be adequate for an early canvass but is weak once the study promises quotas and segmentation. With eight design cells, $n=120$ yields only about 15 farmers per cell before exclusions or missing data; $n=100$ yields about 12-13. Such cells are unstable and invite panel questions about subgroup claims.

The working recommendation is $n=240$ completed surveys. This is not because the national population is large; once populations are large, required probability-sample size changes little. The reason is design utility: eight quota cells of approximately 30 each, enough total cases for directional comparisons and a modest multivariable model, and room for transparent reporting of uncertainty. Because recruitment remains purposive/quota-assisted, conventional confidence intervals describe sample precision only and do not confer national representativeness.

NATIONAL BENCHMARK VERSUS PROJECT DESIGN Under simple random sampling with $p=.50$, 95% confidence, and ± 5 percentage points, $n_0 = 1.96^2 \times .50 \times .50 / .05^2 = 384.16$, conventionally rounded to 385 before design effect and nonresponse. Roots2Beans is not designed as that national probability study. Its recommended $n=240$ supports a bounded pilot-catchment decision and must be described accordingly.

7.6 Proposed farmer quota architecture

Quota dimension	Level 1	Level 2	Design use
Region	Agusan del Norte	Davao Region	Ensures both approved pilot catchments contribute equally or according to an approved allocation.



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Quota dimension	Level 1	Level 2	Design use
Current selling arrangement	Organized: cooperative/association/direct program	Independent: trader-led or self-arranged	Captures differences in coordination experience and market dependence.
Digital readiness	Lower readiness	Higher readiness	Measured before GAMMOT exposure using objective device/use questions, not a subjective adopter label.

Crossing the three binary dimensions yields eight cells. A balanced design assigns approximately 30 completed surveys per cell. Farm size, coffee type, age, gender, tenure, yield band, credit experience, and quality orientation should be monitored and reported; they should not all become hard quotas unless recruitment capacity can support the resulting fragmentation.

7.7 Recruitment and external-validity boundaries

- Use multiple recruitment sources: cooperative/association lists, LGU or extension lists, SMI contacts, community leaders, and independent farmer referrals.
- Record recruitment source and compare key outcomes across sources to detect sponsor or cooperative-selection effects.
- Do not allow field partners to observe responses or imply that participation affects eligibility for finance, inputs, market access, or government support.
- Report refusals, ineligibility, incomplete interviews, and quota substitutions.
- Generalize analytically to similar eligible farmers and operational conditions, not statistically to all Philippine coffee farmers.

7.8 GAMMOT usability sample

The recommended 24-person design sits within the brief's 20-30 range. Round 1 uses 12 participants to diagnose breakdowns across region and digital-readiness profiles, followed by documented interface, training, or process changes. Round 2 uses 12 new participants who have not seen the prior version. Passing 80% means at least 10 of 12 fresh participants complete each critical task independently. This is an operational readiness gate, not a precise population prevalence estimate; task-level evidence and error severity matter more than a single average percentage.

8. Stimuli, instruments, and future fieldwork

8.1 Desk-research and evidence protocol

- Verify every market number against a traceable source, date, geography, definition, and unit.
- Trace every inherited claim to its direct approved source or classify it as an assumption to test; excluded or superseded material must not enter the evidence ledger or references.
- Map alternative channels and comparable growership/traceability models using explicit scoring criteria rather than unsourced High/Medium/Low judgments.



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- Obtain and classify Nestle anchor evidence and any alternative buyer evidence: executed contract, purchase commitment, term sheet, letter of intent, memorandum, or verbal assertion. Extract product/specification, volume, duration, acceptance, delivery, value, rejection, payment, termination, and force-majeure conditions.
- Create a qualified-buyer universe, buyer-archetype and role map, farmer recruitment frame, and source-quality ledger.
- Complete Philippine legal review of the proposed farmer relationship before exposing respondents to full terms; record which provisions are approved, revised, or unresolved.
- Freeze the management decision, final stimuli, disclosure sequence, quotas, action standards, and analysis plan before fieldwork.

8.2 Buyer-landscape KII and commercial-value guide

The buyer guide should move from current sourcing problems to requirements, concept evaluation, commercial value, and an auditable next step:

- Organization, role, decision authority, current sourcing model, supplier alternatives, unresolved procurement problems, and cost/risk of the status quo.
- Required GCB species/specification, moisture, defects, processing/conditioning, lot, food safety, documentation, traceability, annual/seasonal volume, delivery frequency, and location.
- Neutral Roots2Beans concept evaluation: relevance, differentiation, proof required, implementation burden, objections, and conditions for trial.
- Approved package evaluation varying specification assurance, traceability depth, volume reliability, delivery predictability, contract duration, price/premium, financing, payment, rejection, and service-cost sharing.
- Structured price or premium ladder and trade-offs among price, assurance, traceability, volume, payment, and contract duration; record procurement-policy ceilings and budget authority.
- Willingness to take a documented commercial next step, such as data sharing, specification confirmation, sample evaluation, pilot letter, term-sheet discussion, or authorized purchase commitment.
- For the Nestle anchor pathway, verify the declared 'pick all' practice and all operative conditions directly; do not import specialty or 'pick red' assumptions.

8.3 Farmer FGD and IDI guides

The farmer flow should protect spontaneous evidence and sensitive disclosure:



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- Current farm, coffee calendar, intercroops, household food/income sources, seasonal cash-flow and labor peaks, production, selling, support, record-keeping, and decision experience.
- Unbranded neutral concept exposure, open-ended comprehension, relevance, credibility, and questions.
- Standardized full benefits and obligations disclosure, using plain-language term cards and teach-back questions.
- Milestone value/frequency, prescribed work, evidence, verification, approval, rejection, correction, appeal, payment timing, hidden-deduction, monitoring, privacy/surveillance, and record-integrity concerns.
- Separate SMI GCB purchase terms, buyer acceptance, delivery, rejection, price formula, deductions, payment, side-selling, exit, and dispute concerns.
- Realistic competing-offer scenarios varying alternative-buyer price, immediate versus delayed payment, prior Roots2Beans support, contract fairness, market certainty, and exit conditions.
- Conditional participation and the specific term changes or safeguards required for an onboarding step.
- Private IDI follow-up for issues that may be suppressed by group dynamics or cooperative/sponsor presence.

8.4 Farmer survey modules

Module	Core measures
A. Screener and profile	Region, decision role, farm/farm size, crop/type, tenure, yield band, selling arrangement, cooperative status, credit experience, device access, and language.
B. Seasonal livelihood and current behavior	Coffee/intercrop calendar, household food/income sources, labor peaks, seasonal cash gaps, liquidity pressure, support history, current buyer/channel, actual payment timing, competitive prices, deductions/rejections, record-keeping, and unmet needs.
C. Neutral concept	Unaided comprehension; relevance, credibility, uniqueness, trust, perceived value, initial willingness, and open concerns.
D. Full milestone terms	Teach-back of prescribed work, milestone value/frequency, evidence, validation, rejection, correction/appeal, deductions, timing, monitoring, data, privacy, suspension, exit, and dispute terms.
E. Separate GCB purchase	Teach-back that harvest proceeds are separate; buyer acceptance, delivery, volume, price formula, deductions, rejection/remediation, payment timing, and side-selling terms.
F. Adoption and retention	Post-disclosure likelihood, onboarding step, EOI, decision influencers, stay/switch/withdraw conditions, and choices under approved competing-offer scenarios.
G. Behavioral constructs	Income-smoothing value, payment expectancy/fairness, effort/burden, facilitating support, trust, uncertainty, record/data confidence, surveillance risk, livelihood compatibility, and current-channel dependence.
H. Term trade-offs	Forced choices or structured ranking among legally approved, operationally realistic bundles; no attribute should be tested without SMI's ability to deliver it.



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8.5 Concept and terms standardization

All moderators and survey interviewers must use the same wording, order, visuals, definitions, examples, and response scales. A comprehension question must precede willingness. When a respondent misunderstands a material term, the interviewer should provide only the approved clarification and record that clarification. The survey should preserve initial neutral-concept measures before full disclosure so the analysis can quantify the change rather than asking respondents to remember it.

8.6 GAMMOT task protocol

Task	Success criterion	Observed diagnostics
Register or retrieve farmer/farm	Correct record selected or created without moderator action.	Completion, assistance, navigation error, time, confidence.
Link NFC tag	Correct tag linked to the intended farm/tree/unit.	Wrong-link risk, scan/read failure, recovery, explanation of identity.
Record milestone evidence	Prescribed activity, date/time, production unit, responsible user, and required evidence are recorded correctly.	Missing/false fields, burden, offline/network handling, terminology confusion.
Review and validate milestone	Authorized user retrieves the correct record, verifies required evidence, and applies the correct status without bypassing controls.	Record integrity, role separation, wrong approval/rejection, audit trail.
Correct or appeal	User identifies the reason for rejection, follows the correction/appeal path, and can locate the updated status.	Explainability, procedural fairness, turnaround expectation, recovery failure.
Explain payment consequence	Participant accurately explains how approved evidence relates to milestone payment, who can see the record, and what happens after rejection or dispute.	Payment expectancy, hidden deduction, privacy/surveillance, false guarantee misunderstanding.
Retrieve payment and GCB-lot status	User distinguishes milestone-payment status from the separate GCB purchase and retrieves authorized lot/transaction information.	Conflation of income streams, findability, access control, traceability comprehension.

During task measurement, researchers should not coach unless the participant is blocked under the pre-agreed rule. Assistance is recorded, not hidden. Non-compliance, refusal, distrust, and error are data. Round-1 changes must be documented before Round 2 so improvement cannot be attributed ambiguously.

8.7 Pretest and field-quality sequence

1. Expert/content review by the research lead, SMI operating owners, GAMMOT owner, ethics/data-governance owner, and at least one independent research reviewer.
2. Cognitive interviews with approximately 8-12 eligible farmers to test language, interpretation, sensitivity, recall, scales, and teach-back items.
3. Pilot field test with approximately 20 respondents outside the final analytical sample to test length, skip logic, quota capture, interviewer instructions, and data quality.
4. Translation and back-translation for the approved field language(s), followed by reconciliation with local researchers; do not assume one Mindanao language covers both catchments.



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5. Interviewer/moderator certification using role-play, consent, neutral probing, disclosure, technology-assistance, safety, and escalation scenarios.

9. Data analysis and integration

9.1 Qualitative analysis

Buyer KIIs, farmer FGDs, and IDIs should be transcribed or expanded from verified recordings and field notes, translated where necessary, and analyzed using a framework/thematic approach. The buyer framework should compare sourcing problems, required specifications, traceability, assurance, volume, timing, coordination cost, premium/equivalent value, procurement constraints, and commercial-next-step authority across archetypes. The farmer framework should cover seasonal cash gaps, livelihood compatibility, milestone value, payment expectancy, verification, fairness, trust, competing offers, GCB purchase, and refusal conditions. Negative cases and buyer-farmer contradictions must be retained.

9.2 Quantitative analysis

- Describe every item using valid denominators, missingness, distribution, and uncertainty; avoid percentages without counts.
- Use paired analysis for neutral-concept versus full-terms measures: change in top-two-box willingness, Wilcoxon signed-rank for ordinal scores, or McNemar-type tests for paired binary outcomes, as appropriate.
- Report effect sizes and confidence intervals where defensible; avoid treating statistical significance as managerial importance.
- Compare quota/profile groups using cross-tabs, chi-square or Fisher's exact tests, nonparametric or parametric comparisons as distribution and cell size permit.
- Use multivariable logistic or ordinal regression only when event counts and diagnostics support it; label associations, not causal effects.
- Assess multi-item scales using item-total behavior and Cronbach's alpha and/or McDonald's omega, with a working reliability standard of at least 0.70. Revise or report weak scales transparently.
- Behavioral segmentation is exploratory. Use observed needs, behaviors, trust, financing experience, term reactions, and digital readiness; test cluster stability and practical interpretability. If stability is poor, report profiles rather than force named segments.
- Estimate farmer switching curves across competing-offer scenarios and report the price/payment point at which retention materially declines; do not label this as observed side-selling behavior.
- Summarize buyer price/premium ladders and service-package trade-offs at organization level; do not convert a small purposive buyer sample into population percentages.



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- Model farmer H1, H2, and H5 only as associations. Include milestone amount/frequency/work burden and relevant profile controls; test interactions only if cell sizes support them.

9.3 Usability analysis

- Compute task-level independent completion, completion with assistance, failure, time, and error severity for each round.
- Report every critical task separately; a high overall average cannot conceal failure of a privacy, identity, or record-integrity task.
- Compare Round 1 and Round 2 descriptively, while recognizing that fresh participants and iterative changes prevent a simple within-subject test.
- Link quantitative task outcomes to debrief themes such as terminology, trust, burden, device/network constraints, and support needs.

9.4 RQ-method-analysis-decision matrix

Research question	Evidence and analysis	Decision use
RQ1 - Farmer value	FGD/IDI livelihood and cash-flow calendars; survey need/value measures; current-channel evidence and profile analysis.	Identifies the farmer profiles and bundle elements with material value.
RQ2 - Buyer value	Buyer archetype comparison; sourcing-problem and requirement matrix; concept response and proof requirements.	Identifies the buyer segments, specifications, and service elements worth targeting.
RQ3 - Buyer commercial value	Price/premium ladder; feasible package trade-offs; procurement constraints; authorized next-step and buyer-coverage evidence.	Determines the commercial value available to fund the model.
RQ4 - Farmer retention	Full-term teach-back; trust/fairness; competing-offer scenarios; switching curves; refusal and withdrawal conditions.	Determines whether the total farmer value can withstand realistic spot-market alternatives.
RQ5 - GAMMOT/process	Role-level completion, assistance, failure, time, error severity, access control, payment/traceability comprehension, and fresh validation.	Determines interface, training, process, access-control, and governance readiness.
RQ6 - Ecosystem viability	Buyer-farmer value match; legal review; capacity/support model; downside cash-flow; unresolved-risk register.	Selects the corridor and determines proceed/revise/narrow/pause.

9.5 Integration rule

Integration should use a buyer-farmer value-matching matrix and joint evidence display listing buyer requirements, farmer capability or burden, the Roots2Beans intervention, fully loaded cost, evidence strength, contradictions, and gate status. Divergence must be explained rather than averaged away. High farmer willingness cannot offset weak buyer value or inadequate coverage; high buyer interest cannot offset unfair farmer terms; stated GAMMOT satisfaction cannot offset task failure; and a verbal buyer assertion cannot fund the model. The selected corridor must be simultaneously desirable, feasible, legally governable, and economically sufficient.



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10. Rigor, validity, reliability, and field-quality controls

Rubric standard	Concrete Roots2Beans procedure	Audit evidence
Qualitative credibility	Triangulate buyer, FGD, IDI, survey, and observed-use evidence; use respondent teach-back; conduct summary member checks where appropriate; search for negative cases.	Source-tagged codebook, contradiction log, member-check record, and joint display.
Transferability	Record region, farm size, crop/type, channel, cooperative status, credit history, digital readiness, interview setting, and recruitment source.	Thick-description profile table and explicit claim boundary.
Dependability	Freeze protocols; train/certify researchers; version guides and stimuli; record deviations; retain a fieldwork and analysis audit trail.	Version log, training records, deviation log, decision log, and reproducible analysis file.
Confirmability	Predetermine thresholds; declare sponsor interest; dual-code at least 20% of qualitative material; reconcile disagreements; retain unfavorable evidence and reflexive notes.	Coder agreement/reconciliation record, reflexivity memo, and full evidence matrix.
Internal validity	Use one exposure sequence; prevent interviewer coaching; preserve pre/post measures; record clarification; separate research participation from program eligibility.	Field manual, interviewer monitoring, and exposure-version checks.
External validity	Use multiple recruitment sources and planned quotas; report selection, refusals, nonresponse, and subgroup composition; avoid national inference.	Sample disposition and recruitment-source comparison.
Construct validity	Adapt constructs from analogous research; expert review; cognitive pretest; use multiple items for latent constructs; distinguish liking, intention, EOI, task performance, and actual pilot behavior.	Construct-item map, pretest log, and validity review.
Reliability	Standardize instruments; run pilot field test; examine item consistency and alpha/omega; apply field logic and coding checks.	Instrument report, reliability output, data-cleaning log, and codebook.

10.1 Field quality controls

- Daily quota, recruitment-source, duration, missingness, straight-line, and logic monitoring.
- Unique respondent and organization identifiers; documented duplicate checks; no reuse across test rounds unless explicitly designed.
- At least 10% independent back-checks for survey eligibility and selected non-sensitive responses, subject to consent.
- Audio or detailed-note verification for qualitative work, with secure transfer and deletion rules.
- Deviation and adverse-event escalation for consent, privacy, coercion, technology, field safety, or data-integrity issues.

11. Ethics, data governance, and bias control

11.1 Participant protection

- Use plain-language informed consent covering purpose, procedures, duration, recording, data use, risks, voluntary participation, withdrawal, contacts, and compensation.
- State explicitly that research answers do not determine eligibility, milestone approval/payment, GCB purchase, credit, inputs, growership, market access, cooperative membership, or government support.



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- Do not permit cooperative leaders, SMI commercial staff, buyers, lenders, or officials to observe individual responses.
- Avoid hidden surveillance, punitive research-stage consequences, or fabricated compliance. Record non-compliance and understand its cause.
- Provide a private channel for questions or withdrawal, especially where recruitment occurs through an organization with power over the farmer.
- Do not call the proposed compensation a salary in participant materials unless legal counsel has approved the classification and terminology. Research participation incentives must remain separate from any simulated milestone payment.

11.2 GAMMOT data governance

The consent and system explanation must specify what data are collected, why, who controls or processes them, who can access which fields, how long they are retained, how errors are corrected, how records affect decisions, and what happens after withdrawal. The working paper avoids asserting that the farmer legally owns all data because ownership, controller/processor roles, and access rights must be confirmed through SMI policy and applicable law. The governing research principles remain no undisclosed surveillance, no hidden penalty, and no fabricated compliance.

11.3 Commercial and sponsor bias

SMI has a direct commercial interest in Roots2Beans. Bias control therefore requires predetermined standards, neutral concept wording, standardized disclosure, independent facilitation where feasible, separate field recruitment from commercial enrollment, retention of unfavorable findings, transparent coding and analysis decisions, and a report that includes reasons to pause. The study asks what evidence is sufficient to deserve the next investment, not how to prove that Roots2Beans works.

11.4 Legal and payment-governance prerequisite

Before fieldwork, SMI should obtain Philippine legal advice on employment, growership/contracting, taxation, social-protection, wage, data-protection, agricultural-contract, and dispute implications. The research protocol can test comprehension and acceptability of counsel-approved terms; it cannot decide legal classification. Payment governance must define milestone owner, evidence standard, validator independence, approval authority, service level, audit trail, rejection reason, correction, appeal, override, fraud handling, payment proof, complaints, and non-retaliation.

12. Action standards

STATUS OF THRESHOLDS The standards below are a rigorous working proposal. Documentary, farmer, and GAMMOT thresholds can be operationalized now. Legal, operational, and economic limits require SMI inputs and approval before fieldwork. Changing a threshold after seeing results is not permitted without documenting the change as a post-hoc sensitivity analysis.



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Evidence stream	Provisional proceed threshold	Measurement and guardrail
Buyer coverage and commitment	At least one authorized anchor arrangement plus a documented contingency or secondary pathway; combined buyer coverage equals at least 100% of planned pilot output and specifies product, volume, duration, acceptance, delivery, value, rejection/remediation, payment, and termination.	Authorized evidence outranks interview enthusiasm. An LOI or verbal assurance remains provisional and cannot be described as guaranteed offtake.
Buyer commercial value	The price premium, service fee, minimum volume, contract term, faster payment, financing support, shared assurance cost, or equivalent value meets the fully loaded economic floor for the approved corridor.	Show the buyer's next-best alternative, procurement constraints, authorized next step, and the monetary treatment of every non-price commitment.
Milestone-payment comprehension	At least 80% correctly explain prescribed work, required evidence, validation, milestone value, payment timing, rejection, correction/appeal, deductions, data access, and exit after approved clarification.	Use scored teach-back. No respondent with material misunderstanding is counted as informed willingness; no unresolved high-harm pattern.
Two-income-stream comprehension	At least 80% correctly distinguish milestone-based work compensation from the separate harvest-season SMI purchase of buyer-acceptable GCB and explain both payment pathways.	Do not present either payment as guaranteed beyond approved terms; record confusion after clarification.
Farmer adoption	At least 60% report top-two-box post-disclosure willingness to complete the defined pilot-onboarding step; qualified EOI pool is at least 1.5 times planned pilot slots; neutral-to-full decline is no more than 15 percentage points.	Report denominator, confidence interval, region/profile results, and reasons for change. Final threshold requires SMI approval.
Retention and competing offers	Report the price and payment-condition point at which stated retention materially declines; the approved farmer package remains viable under the SMI-defined realistic competing-offer scenario.	Use non-accusatory scenarios. Do not depend primarily on punitive exclusivity; test fair total value, reciprocal commitment, transparent exit, and reliable payment.
GAMMOT critical tasks	In Round 2, at least 80% - at least 10 of 12 - independently complete every critical evidence-to-payment task; at least 80% explain status, access, correction/appeal, and payment consequence; zero unresolved Severity-1 issue.	Do not average tasks. Assistance disqualifies independent completion but remains a diagnostic; validate SMI handoffs and role separation separately.
Trust and fairness	No recurring unresolved Severity-1 issue involving coercion, hidden deduction or penalty, payment misunderstanding, unfair rejection, delivery restriction, privacy, surveillance, record integrity, or data confidence.	Severity is determined from consequence, frequency, and remediability; a small percentage does not neutralize a high-harm issue.
Livelihood compatibility	No prescribed milestone creates an unresolved material conflict with household food production, beneficial intercropping, essential labor obligations, or safe agronomic practice for the intended participant profile.	Use seasonal calendars and negative cases; revise milestone timing/work design rather than interpreting diversification as non-compliance.
Legal/governance readiness	Counsel has reviewed the actual relationship and all full-stimulus terms; payment, data, correction, appeal, complaint, non-retaliation, and role-separation rules have named owners and no unresolved Severity-1 issue.	Research findings cannot cure an unlawful or ambiguous operating arrangement.
Operational readiness	Onboarding, agronomy, evidence validation, payment, processing/conditioning, acceptance checks, aggregation, storage, traceability, delivery, and exceptions fit SMI-approved capacity ceilings. Working diagnostics: $\geq 95\%$ required-record completeness and $\leq 5\%$ critical tag/record failure in rehearsal.	SMI must approve onboarding time, validator/support ratios, payment and appeal turnaround, processing/storage capacity, and operating scale. Rehearsal does not prove season-long feasibility.
Downside economic sufficiency	Buyer-derived value covers 100% of fully loaded pilot costs and committed funds cover milestone compensation, farmer GCB purchases, and operating costs through approved buyer-payment delays and downside cases.	Show unit economics, monthly cash bridge, peak exposure, buyer concentration, rejected/excess output, contingency, and SMI-approved contribution or sustainability floor.



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12.1 Severity definitions

Severity	Definition	Decision treatment
Severity 1 - critical	Risk of participant harm, coercion, material financial misunderstanding, privacy/data breach, irreversible identity/record error, or failure that invalidates a core transaction.	Automatic no-go until resolved and revalidated.
Severity 2 - major	A critical task cannot be completed without moderator intervention or creates a likely material operating error.	Requires redesign/training change and fresh validation.
Severity 3 - moderate	Recoverable friction, delay, or confusion that does not compromise the transaction or participant rights.	Prioritize before pilot; may pass only within approved rate/time limits.
Severity 4 - minor	Cosmetic or preference issue with negligible consequence.	Track for backlog; not independently decision-blocking.

13. Proceed, revise, narrow, or pause decision matrix

Decision	Condition	Required output
PROCEED	One buyer-specification-farmer corridor passes every critical buyer value/coverage, farmer value/retention, GAMMOT, legal/governance, livelihood, operational, and downside-economic gate, with no unresolved Severity-1 issue.	Controlled minimum viable pilot specifying target buyer, GCB specification, farmer profile, service package, owners, funding, monitoring, and post-pilot evidence.
REVISE	Two-sided potential exists, but one or more remediable service, term, interface, proof, governance, support, or economic gates miss.	Specific change, owner, re-test design, threshold, and deadline; no pilot before revalidation.
NARROW	Evidence converges only for a defined buyer archetype, GCB specification, farmer profile, region, contract package, or minimum service bundle.	Smaller named corridor and explicit exclusion of unsupported buyers, farmers, specifications, or features.
PAUSE	Buyer value or coverage is insufficient; farmer willingness/comprehension/retention misses the floor; critical legal, payment, trust, privacy, or livelihood risk persists; or SMI cannot fund/deliver the model.	Stop conditions, protected participant communication, documented learning, and evidence/redesign required before reconsideration.

The decision is conjunctive, not compensatory. High farmer willingness cannot offset weak buyer value, inadequate coverage, unlawful terms, or unusable payment verification. Buyer enthusiasm cannot offset farmer rejection, switching risk, or unaffordable delivery. Narrow is the mechanism for selecting the strongest buyer-specification-farmer corridor; revise and pause are legitimate evidence-based outcomes, not partial failures.

14. Timing, governance, budget, and deliverables

14.1 Illustrative six-week implementation schedule for the future commissioned study

Period	Work	Gate/deliverable
Weeks 1-2	Allowed-source evidence review; buyer-universe and archetype map; anchor/alternative-document review; legal review; farmer and GCB terms; protocol, stimuli, ethics, instruments, and action standards; pretests.	Commissioning gate; source ledger, legally cleared terms, classified buyer evidence, frozen stimuli, standards, and field manuals.
Weeks 2-3	Buyer-landscape and commercial-value KIIs; farmer FGDs and IDIs; ongoing framework analysis.	Buyer segment/requirement/value matrix and farmer construct/term map; survey/package revision gate.



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Period	Work	Gate/deliverable
Weeks 3-4	Survey field pretest and launch; GAMMOT payment-verification Round 1; document system/training/process fixes.	Final questionnaire; Round-1 issue/fix log.
Weeks 4-5	Complete n=240 survey; GAMMOT Round 2 fresh validation; data cleaning; operating and downside cash-flow model.	Locked future-study datasets; usability, capacity, and funding evidence.
Week 6	Buyer-farmer value matching; qualitative/quantitative synthesis; documentary/legal integration; sensitivity analysis; SMI decision workshop; final report.	Recommended corridor, proceed/revise/narrow/pause decision, and minimum viable next step.

SCHEDULE RISK Six weeks is feasible only after the buyer universe, anchor evidence, counsel-cleared farmer terms, feasible buyer packages, GAMMOT prototype, buyer-role access, farmer recruitment lists, field partners, languages, budget, ethics/data rules, and SMI operating/economic inputs are ready. The current course project stops at the protocol. A later delay should revise the schedule rather than compress pretesting or analysis.

14.2 Governance

- SMI business owner: approves management decision, scope, terms, action standards, operating limits, economics, and final investment recommendation.
- LT4A: owns the GMKTG261 research blueprint and presentation. It does not own fieldwork, data collection, results, or the future management recommendation unless separately commissioned.
- Future SMI research lead or commissioned agency: owns protocol implementation, fieldwork supervision, analysis, integration, and transparent limitations.
- GAMMOT owner: supplies the test build, data-flow map, task definitions, error handling, system logs, and change control between rounds.
- Field partners: support access but do not select only favorable respondents, observe answers, coach participants, or link research response to benefits.
- Ethics/data owner: approves consent, role-based access, retention, withdrawal, incident response, and participant communication.
- Legal counsel: approves the proposed relationship and terminology, payment/governance terms, complaint/appeal design, and full-term stimulus before fieldwork.
- SMI finance/treasury owner: verifies funds, monthly cash bridge, payment controls, peak exposure, and downside contingency before pilot recommendation.

14.3 Budget modules

Brief v5.2 requires SMI to confirm the budget ceiling before commissioning. The budget should separately cost research design, source verification, instrument development, translation, pretesting, buyer recruitment, farmer recruitment/incentives, travel, venue, moderation/interviewing, survey fieldwork, GAMMOT setup/devices/tags/connectivity,



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transcription, data processing, analysis, decision workshop, taxes, contingency, and any optional field rehearsal. A single lump sum prevents the team from showing which evidence is lost when budget is reduced.

14.4 Deliverables

Current GMKTG261 deliverables:

- Research issue, questions, hypotheses, formal mixed-methods design, sampling plan, instruments, analysis plan, rigor and ethics controls.
- Offtake-document checklist, legal/governance prerequisite, action standards, decision matrix, illustrative timeline/budget modules, and panel-defense logic.
- Presentation working paper and final deck; no primary dataset, finding, or management recommendation.

Expected deliverables only after SMI commissions and implements the study:

- Verified market and alternative-model evidence ledger.
- Buyer segmentation, sourcing-problem and requirement matrix, premium/equivalent-value evidence, authorized next-step classification, coverage, and contingency pathways.
- Farmer qualitative findings, survey dataset, income-smoothing/payment-fairness evidence, comprehension, competing-offer response, profile comparisons, and EOI pool.
- GAMMOT payment-verification task results, severity log, Round-1 changes, Round-2 validation, and governance recommendations.
- Buyer-farmer value-matching matrix, recommended corridor, legal opinion/status, operating-capacity model, downside economic sensitivities, risk register, and proceed/revise/narrow/pause recommendation.
- Minimum viable pilot design and next evidence required to test actual enrollment, milestone completion/payment, GCB purchase, yield, acceptance, delivery, income stability, and sustained system use.

15. Limitations and interpretation

- This GMKTG261 document is a research design. Any numeric threshold, hypothesized relationship, expected output, or decision pathway is prospective and must not be narrated as a study result.
- Purposive/quota-assisted sampling limits population inference and may overrepresent farmers connected to organizations or SMI networks.
- Concept and survey responses remain hypothetical until respondents undertake a meaningful onboarding action and experience actual terms.



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- Social desirability and power asymmetry may inflate favorable responses, particularly when respondents associate the study with finance, buyers, or government support.
- Buyer KIIs represent purposively selected organizations and cannot estimate population prevalence. Only authorized documents establish binding commitment; interviews cannot validate another buyer's arrangement.
- Two-round usability testing reveals workflow readiness but not season-long compliance, field connectivity, tag durability, support burden, or record completeness.
- A six-week commissioned study cannot observe coffee yield, season-long milestone compliance/payment, income stability, crop loss, GCB acceptance/delivery, contract fulfillment, or repeat buyer behavior.
- Indicative economics depend on assumptions until pilot milestone payments, yields, GCB acceptance, purchase price, processing/conditioning, losses, logistics, and realized buyer-payment timing are observed.
- Intercropping effects are context-specific. The study should not infer that diversification harms coffee without agronomic, labor, household, and income evidence.
- Every market claim must be traced directly to an approved source with a visible date, geography, unit, and definition; superseded internal material cannot be used as an intermediate citation.

16. Predictable panel challenges and defensible answers

Likely question	Defensible response built into this design
How can 240 farmers represent the vast Philippine network?	It does not claim national representation. The study is a quota-assisted pilot-catchment design in two regions. n=240 is chosen for eight cells and directional comparisons; a national 95%/5% probability benchmark would be about 385 before design effects and requires a valid sampling frame.
Why not retain n=100-120 from the brief?	That number supports a canvass, but eight quota cells would contain only about 12-15 cases. n=240 materially improves subgroup defensibility without changing the study into a national survey.
Why mixed methods?	Buyer and farmer qualitative work defines problems, requirements, and terms; the survey estimates directional farmer prevalence and switching thresholds; task testing observes use; documentary/legal/economic review tests non-perceptual gates; integration determines whether evidence converges. No single method answers all six RQs.
Where are your research results?	The course output is explicitly the blueprint for how SMI should conduct the study. Results belong to the future commissioned study; season-long outcomes belong to the later operational pilot.
Why is the operational pilot not part of the six-week study?	The future study is meant to decide whether to invest in that pilot. A limited workflow rehearsal tests procedures; actual seasonal production, payment, and GCB outcomes must follow the gate.
Are 24 usability participants enough?	The purpose is iterative task diagnosis and fresh validation, not population estimation. Two rounds of 12 cover profile variation and make the 80% task gate auditable as at least 10 of 12 per critical task.
Are the action standards arbitrary?	They are management thresholds, not empirical facts. Buyer/farmer/usability standards are proposed transparently and frozen before fieldwork; operating and economic standards must be derived from SMI capacity and risk tolerance.



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Likely question	Defensible response built into this design
How do you prevent respondents from liking the idea because it sounds beneficial?	The design records initial response to the neutral concept, then discloses all material obligations, checks comprehension, and measures the change. It also requires an onboarding step or EOI rather than liking alone.
How do you know GAMMOT adoption is real?	The future study separates intention from observed evidence-to-payment task performance and requires a fresh validation round. Sustained field use and payment integrity remain later-pilot outcomes.
Is GAMMOT paying a salary?	The protocol uses milestone-based work compensation or task-based growership payment pending Philippine legal review. Payment mode alone does not settle employment status; the actual control and relationship must be assessed by counsel.
Why expand beyond Nestle?	Nestle remains the anchor reference pathway, but the research decision includes segmentation and targeting. Qualified institutional buyers are therefore co-primary, and at least one contingency or secondary pathway is required so the pilot is not designed around an untested single-buyer assumption.
How will you test buyer willingness to pay with a small buyer universe?	Use organization-level KIIs, structured price/premium ladders, feasible service-package trade-offs, procurement constraints, and authorized next steps. Depth, role coverage, and documentary evidence matter more than converting the purposive sample into percentages.
How do you address pole-vaulting or side-selling?	The farmer survey uses non-accusatory competing-offer scenarios that vary price, payment speed, prior support, fairness, and certainty. The model should retain farmers through fair total value and reciprocal commitment, not mainly through punitive exclusivity.
How do you prevent inherited assumptions from becoming evidence?	The paper uses a source ledger and claim-status labels. Each claim must trace to an approved project file, authorized record, primary or academic source, or future field evidence; otherwise it remains an assumption or is removed.
Does Nestle require graded or selectively picked coffee?	The declared anchor practice is 'pick all,' not 'pick red.' The protocol asks only for actual buyer-required GCB conditioning and minimum acceptance checks; it does not impose a specialty-grade model.
Does the program replace intercropping?	No. Intercropping may protect household food and income and can support agroforestry. The study tests whether prescribed milestones are compatible with beneficial diversification and household labor.
What if farmers and buyers disagree?	Contradiction is retained in the joint display. The conjunctive rule prevents one side from compensating for failure on the other; revise or narrow may be appropriate.
What is genuinely innovative?	The innovation is the coordinated farmer-to-buyer operating model and decision/data architecture, not the isolated use of NFC. The study tests whether integration creates incremental value relative to existing channels.

17. Information still required from SMI/LT4A

NO ADDITIONAL FILE IS REQUIRED TO USE THIS DRAFT The approved project materials and current declarations are sufficient for v4.0. The items below are commissioning prerequisites. They do not block the course working paper, but SMI or its research partner must resolve them before fieldwork and before any full-term farmer or buyer package is shown.

17.1 Blocking decisions before fieldwork

1. Confirm the exact research catchments within Agusan del Norte and the Davao Region, recruitment partners, expected accessible farmer counts, and approved field language(s).
2. Approve or revise the proposed sample: farmer survey n=240; approximately 8-12 buyer organizations and 12-18 buyer/ecosystem KIIs; four farmer FGDs plus eight IDIs; GAMMOT 24 farmers in two rounds plus fresh validator, procurement, and payment roles.



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3. Define the qualified-buyer universe, three to four candidate buyer archetypes, buyer access plan, feasible service packages, and the exact commercial-next-step evidence that will count.
4. Provide the executed Nestle anchor document or strongest available evidence and any alternative buyer records; confirm entities, product/specification, volume, duration, acceptance, delivery, value, rejection/remediation, payment, termination, and force-majeure terms.
5. Finalize counsel-approved farmer terms: eligibility; prescribed milestones; evidence; validation; value/frequency; payment timing; rejection; correction/appeal; deductions; monitoring/data; intercropping/labor compatibility; suspension; termination; exit; complaint; and non-retaliation.
6. Finalize the separate SMI GCB purchase terms and approved variants: buyer-acceptable GCB specification, volume, delivery, title/risk, price formula, deductions, rejection/remediation, payment, switching/side-selling, exit, and dispute rules.
7. Provide the current GAMMOT build, supported devices/connectivity, data-flow diagram, role-based access, error correction, audit trail, support process, and intended minimum critical tasks.
8. Define financing, pilot slots, maximum cash exposure, required contribution/return, downside ceiling, monthly funds for milestone compensation and GCB purchase, contingency, and responsible approving owners.
9. Keep the operational pilot outside the commissioned market-research study unless SMI formally changes the decision sequence; if later approved, define crop calendar, farms, milestones, duration, personnel, technology, measures, and safeguards.
10. Approve ethics, consent, recruitment, compensation, recording, data retention, withdrawal, incident response, and independent complaint arrangements.

17.2 Evidence and presentation inputs

1. Provide the underlying Nestle interview notes/transcript and permission restrictions on naming the organization or interviewee; reconcile any interview statement with authorized documents.
2. Provide the latest official sources for production, planted area, demand/imports, farmer count, regional share, farmgate price, and buyer requirements. Cite each direct official source rather than an intermediate internal summary.
3. Provide source and calculation files for every yield, premium, price, default, offtake, break-even, TAM, scale, and revenue assumption to be retained; otherwise remove the figure or classify it as a scenario input for testing.



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4. Confirm whether Roots2Beans will include land leasing, corporate growership, farmer partnership, rehabilitation, new planting, or more than one model; respondents cannot evaluate an undefined bundle.
5. Provide the exact pilot roles and available capacity for onboarding, agronomy, evidence validation, payment approval, processing/conditioning, buyer-acceptance checks, aggregation, storage, delivery, GAMMOT support, appeals, and issue resolution.



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Appendix A. Exact approved unbranded concept

USE Reproduce the following wording exactly in the first concept exposure unless the team formally revises and pretests it. Formatting and translation must not change the substantive promise.

UNBRANDED CONCEPT 1

Every harvest begins with hope. But hope alone does not build a successful coffee farm. Long before the first cherries are picked, a farmer must make one of the biggest decisions for the family's future—to invest years of hard work, patience, and commitment in a crop whose rewards will only come with time.

Too often, that journey begins alone. The right variety. The right planting plan. The right care. The right knowledge. The right support. Every decision made before the first harvest shapes everything that follows. That is why Company X was created. Not simply to buy coffee. But to begin where successful coffee farming truly begins. From quality planting materials and farm planning to responsible production support, modern agricultural technology, technical guidance, estate development, and market access, Company X partners with farming families through every stage of the coffee journey—long before the first harvest, and long after it.

Because great coffee is not made at harvest. It is built from the very first seedling. Together, let us grow a new generation of Filipino coffee farms—stronger, more productive, and capable of creating opportunities for generations to come. Some wait for the harvest.

Company X begins with the first seedling.

Available through: seedling starter packages, farm planning and estate development support, growership partnership programs, technical guidance packages, and post-harvest preparation assistance.

For: Filipino coffee farmers, farmer groups, cooperatives, and landowners who want to establish, improve, or expand coffee farms with stronger support from planting to future harvest.

V4.0 INTERPRETATION RULE The approved neutral concept is retained verbatim as the farmer's first exposure, but it does not define the final contract or the buyer-facing proposition. Counsel-approved full terms must clarify the upstream-to-midstream boundary, two payment streams, buyer-pathway specification, data/payment rules, competing-offer and exit conditions, and all material obligations. Buyers require a separate neutral integrator concept followed by feasible service packages. If pretesting exposes a material false inference, LT4A/SMI should formally revise and reapprove the stimulus before fieldwork.



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Appendix B. Sample-size calculations and interpretation

Conventional simple-random benchmark: $n_0 = z^2 p(1-p) / e^2$. At $z=1.96$, $p=.50$, and $e=.05$, $n_0=384.16$, rounded to 385.

This formula assumes a probability sample, independent observations, an effectively large population, and no design effect. A finite-population correction may reduce n only when the accessible population is known and sampling is genuinely random. Clustered or unequal sampling can increase requirements; nonresponse requires additional recruitment.

Why $n=240$ here: the project is not attempting a national 95%/5% estimate. It requires eight quota cells with about 30 completed interviews each, directional profile comparisons, paired concept-to-terms measurement, and a modest adoption model. The result remains nonprobability, region-bounded evidence.

Completed n	Approx. per eight cells	Interpretive consequence
100	12-13	Fragile subgroup percentages; frequent sparse cells; segmentation claim is weak.
120	15	Suitable for early canvass; still limited for multi-dimensional profile comparisons.
240	30	Stronger directional comparisons and modeling; still not nationally representative.
385 probability benchmark	Not a quota-cell prescription	Supports about ± 5 points only under probability-sampling assumptions before design effect/nonresponse.

Appendix C. Construct and measurement map

Construct/outcome	Illustrative measurement	Interpretation caution
Concept comprehension	Open recall plus scored teach-back of the core promise.	Recognition after explanation is not unaided understanding.
Full-terms comprehension	Scored teach-back of benefits, obligations, finance, delivery, data, and exit.	Willingness without comprehension is not informed adoption.
Income-smoothing value	Seasonal cash-flow calendar plus usefulness of milestone amount/frequency relative to the pre-harvest income gap.	Perceived relief is not evidence of actual income stability.
Payment expectancy/fairness	Teach-back and multi-item clarity, predictability, verification, correction/appeal, trust, and fairness measures.	High value cannot offset opaque rejection, delay, deduction, or control.
Livelihood compatibility	Seasonal labor/food/intercrop calendar and perceived milestone conflict or complementarity.	Do not classify all intercropping as harmful or non-compliant.
Burden/effort	Expected time, complexity, record burden, and support need; observed task time in usability.	Expected effort and observed effort are distinct.
Participation	Post-disclosure top-two-box willingness, onboarding-step willingness, and EOI.	EOI is not enrollment, compliance, or retention.
Farmer retention resilience	Choice across competing-offer scenarios varying price, payment speed, prior support, fairness, certainty, and exit.	Scenario choice is not observed side-selling; report the switching point and reasons.
Buyer problem/value	Current sourcing burden, requirement gaps, concept relevance, differentiation, proof required, and next-best alternative.	General local-sourcing interest is not specific Roots2Beans value.
Buyer commercial value	Price/premium ladder, service-package trade-offs, non-price commitments, procurement constraints, and authorized next step.	Stated tolerance is not a binding purchase commitment.



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Construct/outcome	Illustrative measurement	Interpretation caution
Buyer coverage	Authorized document classification; covered specification/volume/period; acceptance, delivery, value, rejection, payment, and termination completeness.	Verbal assurance or an incomplete LOI is not guaranteed offtake.
GAMMOT readiness	Task-level evidence-to-payment completion, assistance, time, error, comprehension, record confidence, and trust.	A mean score cannot conceal failure of a critical approval, correction, appeal, or access task.
Operational feasibility	Capacity, role separation, payment/appeal turnaround, record completeness, processing/conditioning, storage, and delivery readiness.	Requires SMI inputs and later field behavior.
Cash-flow viability	Monthly peak exposure, committed funding, milestone/GCB payments, buyer collection lag, sensitivity/downside, and contingency.	Indicative before observed pilot payments, yield, GCB acceptance, and buyer collection.



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