



INVESTOR WHITEPAPER · V3.0 · ENGLISH EDITION

Kokon · Kosiv MVP

Container mushroom farming in the Carpathians — technical prototype, financial model and crypto roadmap

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SECTION 01

Executive Summary

Kokon is a project of container-based mushroom farms in the Carpathians, featuring a hybrid substrate based on highland (polonyna) hay, IoT/AI monitoring, and a phased transition to a crypto-funded network. This whitepaper describes the MVP phase: a single insulated 20-foot container in Kosiv (Ivano-Frankivsk Oblast) operating as a technical prototype and investment proving ground.

Key Numbers

<p>~\$19K</p> <p>MVP CAPEX</p>	<p>~\$750/mo</p> <p>AVERAGE OPEX</p>	<p>120–180 kg</p> <p>OYSTERS / MONTH</p>
<p>+15%</p> <p>MVP MARGIN (PREMIUM)</p>	<p>3–5 cont.</p> <p>SUSTAINABLE PROFIT POINT</p>	<p>\$300K</p> <p>PHASE 3 NFT MINT</p>

Investment Thesis

The Ukrainian mushroom market is dominated by low-margin wholesale (40–80 UAH/kg). Kokon builds a **premium channel** through three combined advantages:

1. **Hutsul identity** + polonyna hay as a unique substrate component ("Polonyna Mix") — premium pricing of 200–350 UAH/kg through Carpathian HoReCa and online retail
2. **Technological control** — IoT + AI contamination diagnostics reduce risk and enable year-round stable supply
3. **Capital efficiency** via solid-fuel boiler and DIY assembly — bypassing the electric heating trap (16 UAH/kWh)

Honest Economic Assessment

An MVP container, on its own, is a **proof-of-concept at zero or +5–15% margin**, not a cash machine. Real profitability begins with a 3–5 container cluster (Phase 2–3), when:

- One operator services 2–3 containers
- One boiler heats 3–4 containers
- Logistics and substrate procurement consolidate

Funding Structure

- **Phase 1 (MVP):** \$30–35K from 2 angels via LLC — 49% combined for 24.5% × 2
- **Phase 2 (3-container cluster):** Reinvest + private NFT pre-sale ~\$25K
- **Phase 3 (5–7 cluster, Diia.City):** Public NFT mint on Polygon ~\$300K

- **Phase 4 (50+ network):** DAO governance, regional hubs, EU export

Disclaimer: Numbers are projected based on market research as of May 2026. Actual results may vary. This document is not an investment offer or financial advice. All decisions should be made by investors independently with consultation of legal and financial advisors.

SECTION 02

Problem & Opportunity

Ukrainian Mushroom Market 2026

Ukraine ranks among Europe's top 10 oyster mushroom producers (~20K tons/year). 95% of output is standardized oyster mushrooms sold wholesale at 40–80 UAH/kg with thin margins. Producers facing 16 UAH/kWh electricity tariffs are caught in an economic trap: **basic economics do not work** without alternative heating sources and a premium channel.

The Carpathians — An Underserved Niche

Carpathian tourist flows (Bukovel, Yaremche, Vorokhta, Kosiv) generate year-round demand for fresh premium products. The Hutsul HoReCa cluster includes 80–120 manor-restaurants and hotels within a 100 km radius of Kosiv. Mushroom supply to this channel is dominated by foraging (seasonal, 3–4 months/year) or imports from Lviv. **There is no year-round local premium supplier.**

Brain Drain from the Hutsul Region

Demographic crisis in the mountain districts: youth migrate to Poland, Czechia, and western Ukraine. Creating skilled jobs (IoT-farm operator-technologists) in Kosiv has a social impact dimension that resonates with ESG narratives and reinforces crypto fundraising in Phase 2+.

Polonyna Hay — An Untapped Resource

Carpathian highland meadows (polonyny) are a unique agro-ecological resource: 200+ alpine herb species, high mineral profile, low pathogen load. Most polonyna hay is used as cattle fodder or left in the field. Integrating it as a substrate component is a **waste-to-product** model that adds craft narrative without significantly raising costs.

Opportunities

- **Year-round supply** to the Carpathian HoReCa channel
- **"Polonyna Edition"** — premium pricing 250–400 UAH/kg (vs. 60–80 wholesale) backed by craft narrative
- **Technological differentiation** via IoT/AI — easily scaled to N containers and regions
- **EU export** (Poland, Romania) in later phases with certified organic substrate

SECTION 03

Solution: Kokon Modular Farm

Kokon is a modular architecture of 20- and 40-foot container farms with a three-tier integration: physical infrastructure, IoT/AI stack, and crypto-native governance. The architecture deliberately starts with a 20ft Lab+Frut MVP (minimal capital exposure) and then grows vertically (more containers) and horizontally (Lab/Frut specialization on 40ft once the cluster reaches 3+).

Three Product Layers

Layer 1: Physical Farm

Insulated ISO container with Lab, Inkub, and Frut zones. External wood boiler, internal water-fed heater, ventilation with HEPA filtration, ultrasonic humidification, LED lighting. Stainless-steel shelving, up to 4 tiers. Exhaust with spore collector filter.

Layer 2: Digital Layer

10–12 IoT sensors per container (T, RH, CO₂, VOC, lux, ΔP, electricity meter, water meter). 2 IP cameras with cloud AI analysis. Data stream into InfluxDB Cloud + Grafana dashboard. In Phase 2+ — mobile app + on-edge AI for contamination detection (YOLO).

Layer 3: Crypto-DAO (Phase 2+)

Each container is tokenized as an ERC-721 collection × 100 NFT-fractions on Polygon. NFTs grant revenue share, voting, and IoT access. Triple P NFT revenue split: 45/25/15/15. Governance via Aragon OSx with veto rights for the expert circle.

Competitive Advantage

- **Polonyna Mix:** craft narrative + real mineral profile
- **AI Diagnostics:** early detection of contamination (Trichoderma, Penicillium) — reduces risk by up to 50% from baseline
- **Diia.City + Crypto:** legally compliant structure for global capital fundraising while preserving UA-resident operations
- **15% Social Fund:** on-chain transparency, Kosiv community voting — real impact + ESG narrative for investors

SECTION 04

Why Kosiv: Locale & Moat

Kosiv is the center of the Hutsul district of Ivano-Frankivsk Oblast, population ~27,000, an intersection of Carpathian tourist flows and traditional craft culture. Locating the MVP here is a strategic choice of channel and identity.

Location Score

FACTOR	RATING	DETAIL
Logistics → Bukovel (HoReCa)	★★★★★	80 km, 1.5–2 hours, paved road
Logistics → Ivano-Frankivsk	★★★★★	90 km, 1.5–2 hours
Logistics → Lviv	★★★★	210 km, 3–4 hours
Polonyna access	★★★★★	10–30 km to main Chornohora highlands
Carpathian firewood	★★★★★	3,000 UAH/m ³ (vs. 4,500–5,500 in central UA)
Electricity tariffs	★★★	16 UAH/kWh (UA standard)
Talent pool	★★	Brain drain present; technical talent available from closed Delyatyn factories
Hutsul brand	★★★★★	Strong identity adding 30–40% to premium pricing

Carpathian HoReCa Cluster

Within 100 km — at least 80–120 venues forming a stable supply target:

- **Bukovel (35 km to Polyanytsya):** 12 hotels 4–5*, 25+ restaurants, "Hrybova Khata" as a potential flagship client
- **Yaremche, Vorokhta, Tatariv:** 30+ Hutsul-cuisine manor restaurants
- **Kosiv, Sheshory, Kryvorivnya:** local festivals, ethno-fairs, manors
- **Ivano-Frankivsk:** premium-segment restaurants, 1.5–2 hour delivery

The Hutsul Region as Moat

Ukraine's mushroom market shows almost no product differentiation — oyster mushrooms from any region look identical on the shelf. Kokon builds a **geographically protected brand**: "Kokon · Kosiv · Polonyna Mix" cannot be copied by a producer in Lviv or Kyiv without physically relocating infrastructure to the Carpathians. This is a **natural moat** protecting premium margins from competitive pressure.

SECTION 05

Technical Architecture (MVP 20ft)

Construction

20-foot ISO marine container DV (Dry Van), used in serviceable condition. External dimensions $6.06 \times 2.44 \times 2.59$ m, internal usable $5.7 \times 2.35 \times 2.39$ m = **13.4 m² floor space** · **~32 m³ volume**. Load capacity (critical for multi-tier shelving) is standard, up to 28 tons loaded.

Zoning of 13.4 m²

ZONE	AREA	PURPOSE	CLIMATE
Laboratory	3.0 m ²	HEPA, laminar flow hood, microscope	22–24°C, 50% RH, sterile
Substrate Prep	2.5 m ²	Mixer, 80L pasteurizer, scales	not critical
Incubation	3.0 m ²	2 shelf tiers, dark	22–25°C, 70–75% RH
Fruiting	4.5 m ²	4 shelf tiers, LED 6500K	14–18°C, 85–95% RH
Walkway / Harvest	0.4 m ²	work zone	—

Insulation for Carpathian Winter (–15...–25°C)

PIR/PUR sandwich panels at 80 mm provide thermal conductivity $\lambda \approx 0.022$ W/(m·K), giving a U-value of ~ 0.275 . For 50 m² of external surface (walls + ceiling + floor), heat loss at $\Delta T = 40^\circ\text{C}$ is approximately **3.5 kW**. A 12 kW boiler with a 300 L buffer provides 2× capacity and serves 2–4 containers in Phase 2+.

Heating — Wood-Fired Boiler

A long-burn wood boiler (Mayak/Kotlant 12 kW, \$700) is housed in an external module (boiler house under a canopy) and heats water in a 300 L buffer (\$680). A circulation pump (25–40 W, \$80) feeds the heat carrier into a water-air heater inside the container. **Critical:** combustion products stay outside; internal air does not contact the boiler. Firewood consumption for one container in a Carpathian winter: **0.5–0.7 m³/month** × **3,000 UAH** = **1,500–2,100 UAH/month**.

IoT Stack (MVP Version)

COMPONENT	MODEL	PURPOSE
Edge controller	ESP32 + LoRa fallback	Data collection, MQTT publish, local logic

COMPONENT	MODEL	PURPOSE
T + RH	SHT40 × 2 (Frut + Inkub)	±0.2°C, ±1.8% RH
CO ₂	SCD41	±50 ppm, air exchange control
VOC	BME680	Early decay/contamination detection
Illumination	TSL2591	0–88K lux
Spore filter ΔP	Manometer	>80% clogging triggers alert
Electricity meter	SDM230 RS485	Real-time consumption
Water meter	Pulse	Humidification consumption
Heat carrier T	DS18B20	Boiler control
IP cameras	2 × 2MP PoE	Live + AI analysis every 3 hours

Cloud and AI

Data → MQTT → InfluxDB Cloud (free tier) → Grafana Cloud (free tier). Camera snapshots → S3-compatible storage → cloud YOLO inference (via AWS Lambda or Hugging Face Inference API) for contamination detection (Trichoderma, Penicillium). MVP — every 3 hours (\$5–10/month inference). Phase 2 — on-edge (Jetson Nano).

Spore Collection System

Exhaust duct with F7-F9 cassette filter (captures 80–95% of spores 2–10 μm). G3 pre-filter for coarse particles. Optional HEPA H13 at the final outlet. Collected spores can be: (a) used for mother cultures, (b) sold to laboratories, (c) marketed as a unique selling point ("zero-spore footprint"). Protects personnel from Mushroom Worker's Lung.

SECTION 06

Substrate Innovation: Polonyna Hay

Honest research conclusion: Scientific literature and the practice of Ukrainian growers show that **pure hay is NOT the primary substrate for *Pleurotus ostreatus***. Standard dose — 5–15 kg of hay per 100 kg of straw (5–15% by mass). The advantage of polonyna hay is not in yield, but in mineral profile, marketing, and substrate COGS reduction.

Polonyna Mix — The Kokon Formula



Hybrid substrate "Polonyna Mix" — Kokon's main MVP formula

Chemical Profile (Comparison)

PARAMETER	WHEAT STRAW	POLONYNA HAY	OPTIMUM FOR <i>P. OSTREATUS</i>
Cellulose	38–42%	28–35%	30–45%
Lignin	17–21%	10–14%	15–25%
Hemicellulose	26–32%	22–28%	20–30%
Crude protein	3–5%	10–14%	5–12%
Ash residue (minerals)	5–8%	8–12%	—
C/N ratio	60–80	25–35	19–22

Technological Preparation

- Harvesting:** hay from a specific polonyna (e.g., Shesul, Maryshevska) in June–July, after mowing and on-site drying. Transport in bales. Storage in a dry warehouse.
- Chopping:** to 5–10 cm fraction before mixing.
- Mixing** with straw at 70/20 (mass ratio) + 10% bran as nitrogen enricher.
- Soaking:** 12–24 hours to 70% moisture.
- Pasteurization:** steam chamber 71°C / 60–90 min (HACCP-aligned thermal profile).
- Inoculation:** 2–5% grain spawn at 22–25°C after cooling below 28°C.

Risks and Mitigation

RISK	MITIGATION
Wild spores / molds (Trichoderma)	Strict pasteurization, early AI monitoring, water moisture control
Hay batch instability	Single supplier, single polonyna, lab QC of batch, documentation
BE drops at hay > 25%	Control reserve 5–25%, A/B tests in Phase 2

Research Roadmap

For MVP — standardized 70/20/10 formula (validation). Phase 2 — A/B tests at 60/30/10, 50/35/15, incorporation of medicinal species (shiitake, lion's mane). Data published on-chain via DAO Treasury R&D fund to build Kokon's scientific knowledge base. Partnership with Vasyl Stefanyk Precarpathian National University (Ivano-Frankivsk) for sensory and nutrient analyses.

SECTION 07

Operations & Production Plan

Production Cycle (35–45 days full)

1. **Substrate prep** (day 0): chopping, mixing, soaking, pasteurization — 1.5–2 work days.
2. **Inoculation** (day 0–1): 2–5% spawn by mass, packed into bags/blocks of 2.5 kg, transferred to incubation.
3. **Incubation** (days 1–18): 22–25°C, 70–75% RH, minimal ventilation, dark. Substrate colonized by mycelium. AI contamination monitoring via cameras (daily).
4. **Transfer to Frut** (day 18–20): climate change — 14–18°C, 85–95% RH, 6–10 air exchanges/hour, LED 12 hours/day.
5. **Pinning** (days 22–26): primordia formation.
6. **First Harvest** (days 28–32): main fruiting wave, ~70% of yield.
7. **Second Harvest** (days 38–45): 20–30% of yield.
8. **Disposal / Repurpose** (day 45+): spent substrate as fertilizer or pellets for the boiler.

Production Capacity

Fruiting shelves: 4 tiers × 4.5 m² = ~18 m² shelf surface × ~6.5 blocks/m² = **120 blocks simultaneously**. At 2.5 kg/block = 300 kg substrate. 2 fruiting cycles/month = 600 kg substrate/month. BE 22–28% (Polonyna Mix) → **yield 130–170 kg oysters/month, average 150 kg**.

Personnel

- **Operator-technologist**: 1 person, 25–30 hours/week, gig contract (Phase 1) or LLC employment. Salary 10–14K UAH/month.
- **Founder (Kokon)**: management, technical decisions, B2B sales.
- **External contractors**: bookkeeping (1×/month), electrician, technician (on demand).

Quality and Safety

- DSTU 4830:2007 certification (fresh mushrooms) — Phase 1
- HACCP — Phase 2
- Organic certification (Organic Standard) — Phase 3, before EU export

SECTION 08

Market Analysis

Ukrainian Mushroom Market 2026

Total market volume of cultivated mushrooms in Ukraine — about 35,000 tons/year (button mushroom 75%, oyster 22%, others 3%). Oyster mushroom growth at 4–6% YoY. Per capita consumption — 1.0–1.2 kg/year (below EU 2.5–3.5 kg). Demand for specialty species rising: shiitake, lion's mane (medicinal/functional narrative).

Prices (UAH/kg, May 2026)

CHANNEL	PRICE	VOLUME / AVAILABILITY
Direct farm wholesale	40–75	Large volumes, low margin
Lviv / IF wholesale market	80–110	Through intermediary
Carpathian baseline HoReCa	150–200	Yaremche, Vorokhta
Bukovel HoReCa	180–250	4–5* hotels, premium restaurants
Craft fairs	200–350	Kosiv, ethno-festivals, seasonal
"Polonyna Edition" online	250–400	Premium, export-ready packaging

Target Audience

- **Carpathian HoReCa (60% of planned volume):** restaurants, hotels, manors — need stable fresh supply 5–20 kg/week.
- **Ethno-craft fairs (20%):** seasonal "Polonyna Edition" sales in Hutsul packaging (linen pouches, QR-coded NFT certificate tag in Phase 2).
- **Online retail (15%):** via "Silpo," Rozetka FOOD, local marketplaces.
- **IF/Lviv wholesale (5%):** excess inventory.

Competition

Direct: none within 100 km radius (verified through Agro-Ukraine, Agrotorg). Closest mushroom farms — Lviv (~210 km), Ternopil (~280 km). Indirect: foraged forest mushrooms (seasonal, August–October), imports from Poland (standard, no local narrative).

Entry Barriers

- **Technological:** mycological expertise, IoT stack — 6–12 months ramp-up

- **Regulatory:** certification, sanitary permits
- **Brand:** "Made in Kosiv" + craft narrative — protected by location
- **Capital:** \$20K per container — significant for the Carpathian SMB market

SECTION 09

Financial Model

9.1 CAPEX Breakdown

CATEGORY	USD	UAH	%
20ft container + insulation + finish	5,600	232,400	29.5%
HVAC + heating (in-container heater)	900	37,400	4.7%
Shelving, partitions, interior	1,600	66,400	8.4%
Lab equipment	1,900	78,900	10.0%
Ventilation + humidification + LED	1,000	41,500	5.3%
Electrical + plumbing	700	29,000	3.7%
IoT + AI + cameras	600	24,900	3.2%
Spore collection system	250	10,400	1.3%
Installation + commissioning	1,200	49,800	6.3%
Container subtotal	13,750	570,700	72.4%
Boiler house (amortized over 2-4 containers)	2,060	85,500	10.8%
Spawn reserves + tools	700	29,000	3.7%
Legal formalities	300	12,500	1.6%
15% contingency	2,500	103,800	13.1%
TOTAL MVP CAPEX	~19,000	~789,500	100%

9.2 OPEX Projections

ITEM	WINTER UAH/MO	SUMMER UAH/MO	AVERAGE
Electricity	4,700	10,600	7,650
Firewood	1,800	0	900

ITEM	WINTER UAH/MO	SUMMER UAH/MO	AVERAGE
Substrate + spawn	5,500	5,500	5,500
Spore collector filters	950	950	950
Water + utilities	300	300	300
Packaging	650	650	650
IoT/cloud/SIM	400	400	400
Maintenance	600	600	600
Logistics	1,600	1,600	1,600
Operator	12,000	12,000	12,000
OPEX TOTAL	28,500	32,600	30,550

9.3 Revenue Scenarios (monthly, at 150 kg yield)

SCENARIO	REVENUE	OPEX	MARGIN
A · Wholesale-only (100% × 60 UAH)	9,000	-31,000	-22,000
B · Mixed (50/30/20)	21,600	-31,000	-9,400
C · Premium HoReCa+Polonyna	35,500	-31,000	+4,500 (+15%)
D · Summer tourist peak	35,700	-34,000	+1,700 (+5%)

9.4 5-Year Projection (Scenario C, baseline)

YEAR	CONTAINERS	REVENUE/YR	OPEX/YR	NET PROFIT	CUMULATIVE
2026 (Q3-Q4)	1 (partial)	170,000	-155,000	+15,000	+15K
2027	1 (full)	426,000	-372,000	+54,000	+69K
2028	3	1,510,000	-1,180,000	+330,000	+399K
2029	5-7	3,200,000	-2,400,000	+800,000	+1.2M
2030	10+ (DAO mode)	6,000,000+	-4,200,000	+1,800,000+	+3M+

All figures in UAH. Projection follows conservative Scenario C (premium HoReCa+online), excluding Phase 2+ NFT raises

9.5 Sensitivity Analysis

PARAMETER	BASELINE	PESSIMISTIC	OPTIMISTIC	IMPACT ON NP/MO
Oyster price (HoReCa)	200	160	240	±6,000 UAH
Yield (kg/mo)	150	120	180	±6,000 UAH
Electricity tariff (UAH/kWh)	16	20	14	±1,800 UAH
Firewood (m ³ /mo)	0.6	1.0	0.4	±1,200 UAH
Operator salary	12,000	15,000	10,000	±2,500 UAH

SECTION 10

Funding Structure

10.1 Phase 1: Founders + 2 Angels (UA Legal)

MVP phase: \$30–35K via 2 angel investors. Legal structure — **LLC "Kokon" with 3 members** + Shareholders Agreement.

- **Why LLC, not sole proprietorship (FOP):** sole proprietorship caps revenue, prohibits co-owners, cannot incorporate IP
- **Why NOT Joint Activity Agreement:** no separate legal entity, complicates Phase 2 migration (Diia.City residency requires a legal entity)
- **Why NOT crypto tokenization yet:** premature (lacking 6+ months of metrics), legally expensive (\$5–18K legal+audit), UA regulation unstable (bill 10225-d at first reading)

Equity structure (detail — Appendix A: Term Sheet):

MEMBER	CONTRIBUTION	STAKE
Founder (Kokon)	\$5K + IP + management	51%
Angel A	\$15K cash	24.5%
Angel B	\$15K cash	24.5%
Pre-money	\$80,000	
Post-money	\$110,000	100%

10.2 Phase 2-4: Crypto Roadmap

Transition to crypto fundraising — based on the chosen architecture:

- **Phase 2 (2027):** Private NFT pre-sale 10–20 NFT × \$1K = \$10–20K (friends & family, no public marketing, KYC required)
- **Phase 3 (2028):** Public NFT mint on Polygon — 200 NFT × \$1.5K = \$300K. Registered as Diia.City resident (conditions met: ≥9 staff, €1,200 average compensation). CASP licensing via Lithuania (backup) for EU compliance.
- **Phase 4 (2029+):** DAO governance active, regional hub network, EU export.

10.3 Token Economics (Phase 3+)

Triple P NFT distribution: 45 / 25 / 15 / 15

<p>45%</p> <p>NFT holders</p> <p>Pro rata to share. USDC payouts quarterly via Chainlink Functions.</p>	<p>25%</p> <p>Executors</p> <p>Operators, logistics. Diia.City gig contracts. On-chain bounties.</p>
<p>15%</p> <p>DAO Treasury</p> <p>R&D, new containers, AI models. 3-of-5 multi-sig.</p>	<p>15%</p> <p>Carpathian Social Fund</p> <p>Kosiv infrastructure, education. Community votes on priorities.</p>

Network: 1 container = 1 collection × 100 NFTs. Mint price \$500–5,000, average ~\$1,500. Per-container cap \$50K–500K. Details — Appendix B: Token Specs.

10.4 Regulatory Compliance

JURISDICTION	STATUS	STRATEGY
 Ukraine	Law 2074-IX (2022) + 10225-d (1st reading 03.09.2025)	Await final 2026; transitional PIT 5%; registration via NSSMC
 EU MiCA	In force from 30.12.2024	Structure as utility token; in Phase 3 — CASP licensing via Lithuania/Estonia
 SEC (Howey)	RWA = potentially security	Avoid US investors or Reg D 506(c) accredited only

Token classification disclaimer: Kokon Container NFTs are utility tokens that grant operational rights (IoT access, voting) and a technically implemented share of revenue from a specific physical asset. They are NOT securities. Prior to public mint — mandatory legal opinion from UA + EU counsel. NOT FINANCIAL ADVICE.

SECTION 11

Team & Advisors

The team is built phase-by-phase, tied to development milestones. Names and biographies of specific members will be finalized prior to public fundraising launch (Phase 3) — during Phase 1 (angel round) they are disclosed via a separate Data Room under NDA.

Why no names in the public document: disclosing the team composition before participation structure is finalized may create reputational risk for advisors (especially attorneys at regulated firms) and inflate investor expectations. The role profile below shows who we are looking for and with whom we are already in conversation; specific links open in the Data Room for serious investors.

Core Team — Phase 1 Role Profile

Founder & CEO

Profile: 7+ years in IT/AgriTech/Biotech (product roles, technical background or biosensorics). Personal capital contribution \$5K + IP. 4-year vesting with 1-year cliff. **Responsibility:** overall strategy, B2B HoReCa sales, technical decisions, relationship with angels and Phase 2+ counsel. Location flexible (frequent travel to Kosiv).

Operations Lead (Kosiv, on-site)

Profile: technical education (mechanical engineer, agronomy, or biology), 3+ years of production-process or greenhouse-cultivation experience. **Preferably local** — resident of Kosiv, Kutu, Sheshory, or neighboring communities (to reduce relocation risk). Diiia.City gig contract in Phase 2; Phase 1 — LLC employment. **Responsibility:** daily growing cycles, IoT monitoring, boiler maintenance, contact with polonyna communities for hay sourcing, first deliveries.

Technology Lead (IoT/AI)

Profile: 5+ years embedded/IoT development (ESP32, MQTT, Python), computer vision experience (YOLO, OpenCV) or readiness to learn. Phase 1 — part-time or contract role (\$800–1,500/mo); Phase 2 — full-time, Diiia.City gig contract. **Responsibility:** IoT stack architecture, contamination AI models, cloud integration, smart-contract dev (Phase 3, with external Solidity auditors).

Mycology Advisor (consulting)

Profile: mycology professor/associate professor, preferably from Vasyl Stefanyk Precarpathian National University (Ivano-Frankivsk) or Ivan Franko Lviv National University. Industrial-scale Pleurotus ostreatus growing experience, lab substrate analysis, HACCP certification. **Engagement:** hourly rate (~\$50–80/hr), 4–8 hours/month in Phase 1; equity stake (1–2%) considered as Phase 2 option. **Responsibility:** Polonyna Mix formula validation, A/B testing, R&D fund scientific base.

Advisory Board — Outreach Pool (disclosed in Data Room)

Crypto/Legal Advisor

Ukrainian law firm with parallel experience in Diia.City residency and RWA tokenization. Target candidates — Buzko Krasnokutsky (published RWA guide for UA business), AVELLUM (UA → EU jurisdictional bridges), Asters (Diia.City + crypto), Sayenko Kharenko. **Engagement:** retainer \$500–1,500/mo in Phase 1; full legal counsel in Phase 3 (\$8–15K for legal opinion + smart-contract review).

HoReCa Channel Advisor

Manager or chef of a Bukovel-grade hotel/restaurant (Radisson Blu, Bukovel Hotel) or a premium Hutsul manor ("Hrybova Khata"). **Contribution:** market insight, pricing positioning verification, lead-in with first contracts. **Engagement:** equity stake 0.5–1% or revenue share 1–2% on the HoReCa channel; alternative — supply contract with volume discount.

AgriTech Advisor

Representative of the Ukrainian Industrial Mushroom Producers Association (UAPG) or owner of a regional farm (Lviv, Ternopil oblasts). **Contribution:** scaling experience, spawn and equipment suppliers, certification. **Engagement:** consultancy fee \$300–600/month; recommendation via UAPG membership.

Community/ESG Advisor

Head of Kosiv community (OTH), local council deputy, or principal of a local school/hospital. **Contribution:** regional Social Fund legitimacy, access to polonyna communities, regional media PR channel. **Engagement:** non-equity advisor; participation in Social Fund multi-sig (Phase 3); public association with the project as a "social contract," not a commercial deal.

Gaps in the Starting Team — and How They Close

GAP	CLOSING STRATEGY
Solidity auditor / smart-contract developer	External team (Hacken, Chainsulting) in Phase 3, not in-house
LLC bookkeeper	Outsourced (1×/mo, \$200–400) in Phase 1; full-time in Phase 2
Marketing / community lead	Phase 2: contract marketer for NFT pre-sale; full-time in Phase 3
Designer / UI	Behance/Dribbble freelance in Phase 1 (\$1–3K); in-house — Phase 3

The team structure is deliberately minimized to reduce Phase 1 burn rate (\$30K round must cover 6 months of runway). The key principle is linear scaling of roles alongside the container cluster.

SECTION 12

Roadmap & Milestones

PHASE 0 · 2026 Q2**Pre-MVP — Preparation**

LLC "Kokon" registration in Kosiv. Land lease agreements. Container procurement. Angel sourcing. Polonyna hay harvest (June–July).

Budget: \$5K bootstrap · Team: 1

PHASE 1 · 2026 Q3-Q4**Kosiv MVP — 1 container**

First container assembly and launch. First cycles: Polonyna Mix 70/20/10. Bukovel HoReCa channels onboarding. IoT metrics, economic validation. First sales December 2026.

Budget: \$30–35K (2 angels × \$15K) · Team: 2 · Expected yield: 100–150 kg/mo by Dec 2026

PHASE 2 · 2027 Q2**3-container cluster — model validation**

Adding 2nd and 3rd containers. One boiler now serves 3 containers. Specialization: 1× Lab + 2× Frut. Polonyna Mix A/B tests (20/25/30%). Friends & family pre-sale of 10–20 NFTs.

Budget: \$25–35K · Team: 3 · Revenue: 250–350K UAH/mo

PHASE 3 · 2028 Q1**5–7 cluster + Diia.City + public token**

Diia.City residency. Polygon public NFT mint: 200 NFT × ~\$1,500 = \$300K. OpenSea/Magic Eden listing. EU export start.

Budget: \$300K crypto raise · Team: 7–10 · Revenue: 1.5–2.5M UAH/mo

PHASE 4 · 2029+**50+ network — DAO governance**

Regional hubs: Kosiv, Bukovel, Chernivtsi, Lviv, Zakarpattia. EU export. Robotics (FarmBot-analogue "MushBot"). Social impact tracker with on-chain distribution.

Crypto-native funding · Team: 30+ · DAO active

SECTION 13

Risks & Mitigation

Production Risks

RISK	PROB.	IMPACT	MITIGATION
Contamination (Trichoderma, Penicillium)	High	30–100% batch loss	Strict pasteurization 71°C/90 min · AI monitoring · hay batch QC
Boiler outage in winter	Medium	T < 10°C	IoT temperature sensor · push alert · backup 2 kW e-heater
Power outage (UA)	High	Ventilation failure	UPS for IoT · boiler power-independent · alerts
Summer overheating	Medium	T > 35°C → death	Backup AC unit · monitoring · entry shading
Low hay batch quality	Medium	BE down to 15–18%	Lab batch analysis · backup straw stock

Carpathian-Specific Risks

RISK	MITIGATION
Winter logistics (mountain passes)	Main routes to Bukovel/IF — paved, rarely closed; 2–3 day product reserve; long-term volume contracts
Tourism seasonality	Channel diversification; off-season — IF wholesale + online retail
Talent shortage	Strong onboarding; IoT as decision support; positioning as "tech work"; Social Fund as retention
Polonyna access	Agreements with Kosiv OTH and polonyna communities; revenue-share 0.5–1%

Legal/Crypto Risks (Phase 2+)

RISK	MITIGATION
UA regulatory shock	Flexible structure; relocation readiness to Estonia/Lithuania; legal opinion from 2 firms
MiCA classification as security	Structure as utility; avoid reasonable expectation of profit in marketing; KYC EU residents

RISK	MITIGATION
Smart contract bug	2 audits (Hacken + ImmuneFi \$10K bounty); multi-sig; upgradable proxy with timelock
SEC action vs. US investors	Geo-fencing, KYC US citizens, or Reg D 506(c) lane

Economic Risks MVP

RISK	MITIGATION
Bukovel HoReCa seasonality	Annual hotel supply contracts; surplus drying; Polonyna Edition
Firewood price increase	Forestry contracts; backup pellet burner
Wholesale price decline	Not dependent on wholesale; premium channel preserves price
"Polonyna Edition" failure	Pivot to standard oysters + export shiitake/lion's mane

APPENDIX A

Term Sheet Phase 1 (Outline)

ITEM	TERM
Issuer	LLC "Kokon" (UA, Kosiv)
Instrument	LLC equity + Shareholders Agreement
Pre-money valuation	\$80,000
Total raise	\$30,000 (2 × \$15,000)
Equity per investor	24.5% (49% combined)
Use of proceeds	1× MVP container (\$19K) + 6 mo runway (\$11K)
Liquidation preference	1× non-participating
Anti-dilution	Weighted average, narrow-based
Tag-along, drag-along	Standard UA SHA
Founder vesting	4 years with 1-year cliff
Information rights	Monthly financial report + IoT dashboard read-only access
Board seats	1 per angel (LLC supervisory board)
Phase 2 conversion	NFT priority allocation (15-20% mint price discount) OR cash buyout 2-3× from MVP profit
Closing	30 days from Term Sheet signing

This Term Sheet is not a legally binding offer. All terms subject to final negotiation in the Shareholders Agreement.

APPENDIX B

Token Specs Draft (Phase 3)

Technical Specification

- **Standard:** ERC-721 (Polygon PoS, possible migration to Polygon zkEVM)
- **Structure:** 1 container = separate collection = 100 NFT-fractions
- **Mint price:** \$500–5,000 (average ~\$1,500)
- **Royalty:** 2.5% (EIP-2981) → DAO Treasury
- **Metadata:** IPFS-hosted JSON: container ID, location, capacity, IoT endpoint, container photo
- **Lockup:** 6 months post-mint (no secondary sale)
- **Audit:** Hacken + ImmuneFi \$10K bug bounty

Smart Contract Suite

1. **KokonContainerNFT** — ERC-721 with KYC allowlist, royalty
2. **RevenueDistributor** — pull-based USDC payouts
3. **KokonDAO** (Aragon OSx plugin) — propose/vote/execute, vetoModule for expert circle
4. **SocialFundMultisig** — 3-of-5 community multi-sig
5. **OracleAdapter** — Chainlink Functions for IoT/yield reporting

Governance

- **Quorum:** 30% of container's NFT holders
- **Vote weight:** 1 NFT = 1 vote (per container)
- **Veto:** expert circle (mycologists, agronomists) may block decisions exceeding risk threshold
- **Cross-container:** network-level decisions — separate KOK governance token (Phase 4)

Revenue Distribution

Daily monthly cycle: product sales → USDC into Treasury → 45/25/15/15 split → quarterly payout. NFT holders pull-withdraw from RevenueDistributor.

Disclaimer: this specification is a draft to be finalized through legal opinion + smart contract audit before Phase 3 launch. All parameters (mint price, lockup, royalty, distribution) may change.

APPENDIX C

Disclaimers & Legal Notes

General Disclaimer

This whitepaper is a strategic and technical document of the Kokon project. It is not an offer of securities, investment advice, or any form of public placement. All Kokon tokens described herein are intended as utility tokens. Recipients of this document should perform their own due diligence and consult with qualified financial, legal, and tax advisors before making any decisions.

Forward-Looking Statements

This document contains forward-looking statements regarding plans, projections, and expected outcomes. These statements involve risks and uncertainties. Actual results may differ materially. Kokon makes no guarantee as to the accuracy of forward-looking statements and assumes no obligation to update them.

Crypto/Token Disclaimer

Kokon NFTs (planned for Phase 2+) are utility tokens that grant operational rights (access to IoT data, voting on container decisions) and a technically-implemented share of revenue from a specific physical asset (a mushroom container). They are NOT securities under Ukrainian Law "On Capital Markets" or under U.S. SEC Howey test (in the sense that returns depend on operational decisions made by holders themselves and physical world performance, not on the efforts of a third party promoter).

However, the regulatory landscape evolves. Final classification depends on a legal opinion to be obtained prior to public launch. Purchasers bear all production, regulatory, technological, and market risks.

NOT FINANCIAL ADVICE

Nothing in this document constitutes investment, legal, tax, or accounting advice. This is not an offer to sell or solicitation of an offer to buy any token, security, or other financial instrument. Past performance does not guarantee future results.

Geographic Restrictions

This whitepaper and any future Kokon token offering may be restricted by law in certain jurisdictions, including but not limited to United States, China, Singapore, Iran, North Korea, Cuba. Recipients are responsible for ensuring compliance with applicable laws.

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