KINGDOM OF CAMBODIA • NATION - RELIGION - KING

KAMPONG SPEU PROVINCIAL ADMINISTRATION

# KAMPONG SPEU DEMOGRAPHIC & SCHOOL MONITORING SYSTEM

## (KSP-DMS 1.0)

### Executive Leadership Presentation & Phased Capital Investment Blueprint

| | |
|---|---|
| **Target Audience:** His Excellency Provincial Governor & Executive Board | **Document Reference:** KSP-GOV-IT-2026-PRES-001 |
| **Originating Unit:** Planning & Information Technology Unit | **Total Project Capital:** $48,500.00 USD (198,850,000 KHR) |
| **Implementation Duration:** 21.5 Man-Weeks (8 Structured Work Steps) | **Disbursement Method:** 3-Period Performance-Based Milestones (30% / 40% / 30%) |

**Executive Presentation Purpose:** To provide provincial leadership with a deep, crystal-clear understanding of the KSP-DMS system, its municipal value, youth mobilization capabilities, and exact step-by-step financial investment requirements with period-based disbursements.

# 1. Current Administrative Challenges Faced by Provincial Leadership

Why Kampong Speu needs a modern, unified demographic and municipal intelligence platform

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|---|---|
| **1. Fragmented Demographic Records**<br>Citizen records, IDPoor classifications (Level 1 & 2), and vulnerability rosters remain trapped in paper binders across 87 communes, causing severe delays during social fund distributions. | **2. School Infrastructure Visibility Gaps**<br>With 12+ public high schools and polytechnics across 8 districts, leaders lack live spatial visibility into classroom deficits, teacher-student ratios, clean drinking water, and lab equipment. |
| **3. Uncoordinated Youth Mobilization**<br>During emergency flash floods (Aoral, Phnom Sruoch) or major civic events (Sea Festival, Sankranta), youth mobilization relies on informal word-of-mouth without verified student cards or organized task forces. | **4. Social Media Notices Lack Attribution**<br>When the administration posts official announcements on Facebook, leadership cannot verify which students or officers share them, or measure the true viral reach of directives. |
| **5. Foreign Cloud Licensing Costs ($20k+/yr)**<br>Leasing proprietary commercial software consumes massive recurring foreign currency and risks citizen data sovereignty by storing records overseas. | **The KSP-DMS Solution:**<br>**A 100% sovereign, on-premise command platform connecting municipal data, school capacity, student volunteer task forces, and Facebook tracking into a single dashboard.** |

# 2. Technical System Architecture & 100% Data Sovereignty

How the 3-tier architecture ensures speed, resilience, and zero recurring foreign license fees

| TIER 1: PUBLIC & VOLUNTEER ACCESS *(Mobile & Web Edge CDN)* | TIER 2: SOVEREIGN APPLICATION CORE *(Laravel 10 / PHP 8.2 Logic)* | TIER 3: AIR-GAPPED DATA VAULT *(On-Premise MariaDB 10.4)* |
|---|---|---|
| • **Youth Portal:** Mobile-responsive registration with student card photo upload.<br>• **Community Hub:** Mission directives & Facebook share buttons.<br>• **Cloudflare Edge:** Zero-cost global CDN delivering sub-second response times.<br>• **Admin Radar:** Live telemetry dashboard for provincial leadership. | • **Youth Engine:** Code generator (KSP-YOUTH-XXXXXX) & task force allocator.<br>• **Attribution Radar:** Dynamic referral tokens (ref=STU-XXXXXX) tracking shares & clicks.<br>• **GIS Spatial Engine:** 8-District Leaflet GIS choropleth mapping.<br>• **AI Diagnostic Bot:** Self-healing system health monitor. | • **MariaDB 10.4:** Relational database running on local server at Provincial Hall.<br>• **Encrypted File Vault:** Secure storage for student ID card images.<br>• **Automated Daily Backups:** Local air-gapped snapshots preventing data loss.<br>• **Zero Software Licenses:** $0 recurring annual vendor bills. |

**Sovereign Security Guarantee: All citizen identities, vulnerability flags, and student ID photos remain physically within Kampong Speu Province, meeting the highest Cambodian national cybersecurity and privacy standards.**

# 3. Core Operational Capabilities: What Does Leadership Receive?

Detailed operational features delivering tangible administrative power to the Provincial Administration

**A. 4 Specialized Youth Task Forces**

Students register with uploaded student IDs and are verified into operational units:

- *Disaster Relief:* Flood/storm crisis response in Aoral & Phnom Sruoch.
- *Digital Census:* Mobile tablet demographic data entry in rural communes.
- *Clean & Green City:* Environmental campaigns in Chbar Mon.
- *Civic Protocol:* Provincial cultural and VIP delegation management.

**B. Facebook Attribution Radar**

Integrates with facebook.com/groups/kampongspeu.youth.

- Leaders publish official provincial missions.
- Students share with personal referral tokens (ref=STU-XXXXXX).
- Radar logs exact sharer identity, school, timestamp, and referral clicks.
- Real-time leaderboard highlights top student ambassadors.

**C. School Infrastructure & Capacity Matrix**

- Complete registry of 12+ public high schools and polytechnics.
- Audits classroom capacities, total teachers, and student-to-teacher ratios.
- Monitors clean drinking water, electricity, sanitation latrines, and computer labs.
- Gives leaders early warning before classroom shortages trigger crises.

**D. AI Diagnostic Bot & Extensibility Hub**

- *Self-Healing Bot:* Audits database, file vaults, and cache, auto-repairing defects with 1 click or CLI php artisan ksp:diagnose --fix.
- *One Place for Updates:* Centralized Feature Hub to toggle features and register future municipal modules (SMS broadcast, Telegram bot, Drone mapping).

# 4. Step-by-Step Capital Investment Breakdown (Where Every Dollar Goes)

Transparent itemized accounting across 8 engineering work steps — Total Budget: $48,500 USD (198,850,000 KHR)

| Step # | Engineering Work Package | Key Deliverables & Specifications | Effort & Resource | Amount (USD) |
|---|---|---|---|---|
| **Step 1** | **Architecture, Threat Model & Security** | SRS specifications, threat matrix, GDPR/Cambodia privacy compliance, RBAC matrix. | 2.0 Wks (Lead Architect) | **$4,500.00** |
| **Step 2** | **Demographics & 8-District Spatial GIS** | Relational schema for households/citizens, Leaflet GIS map, vulnerability flags. | 4.0 Wks (Full-Stack GIS) | **$8,800.00** |
| **Step 3** | **School Infrastructure Registry** | Institutional registry (12+ schools), facility audits, teacher-student ratios, WASH. | 3.0 Wks (Senior Backend) | **$7,200.00** |
| **Step 4** | **Youth Mobilization Subsystem** | Public portal, student ID card upload & validation, 4 task force rosters. | 3.5 Wks (Mobile/Web Dev) | **$7,800.00** |
| **Step 5** | **Facebook Community Hub & Radar** | Mission feed, tracked share generator with ref tokens, real-time attribution radar. | 2.5 Wks (Social API Dev) | **$6,200.00** |
| **Step 6** | **Edge Distribution & Server Hardening** | Cloudflare Pages edge sync + local air-gapped XAMPP MariaDB, auto backup. | 2.5 Wks (DevOps Engineer) | **$5,500.00** |
| **Step 7** | **Automated QA Suite & AI Auto-Fix** | 37 automated test suites (204 assertions, 100% pass), AI self-healing bot. | 2.0 Wks (QA / Sec Auditor) | **$4,500.00** |
| **Step 8** | **District Staff Training & Handover** | 3-day on-site training for 8 districts, bilingual manuals, Git source code handover. | 2.0 Wks (Training Specialist) | **$4,000.00** |
| | **TOTAL TURNKEY PROJECT CAPITAL** | **Includes 12 months comprehensive warranty & technical SLA support** | **21.5 Man-Weeks** | **$48,500.00** |

# 5. Pay Fund by Period on Each Step (Performance-Based Milestones)

Zero-risk financial control: leadership disburses funds strictly upon verified technical delivery at each period

| Disbursement Period | Covered Steps & Scope | Mandatory Verification Trigger (Proof of Delivery) | Share | Amount (USD) | Amount (KHR) |
|---|---|---|---|---|---|
| **PERIOD 1**<br>**Project Inception Deposit** | **Step 1:** Architecture, Threat Modeling, Security Blueprint & DB Design | Formal sign-off on IEEE 830 SRS document, applied MariaDB schema, and initialized XAMPP local environment. | **30%** | **$14,550.00** | **59,655,000** |
| **PERIOD 2**<br>**Mid-Term Core Delivery** | **Steps 2, 3, 4, 5:** 8-District GIS, School Registry, Youth Portal & Facebook Radar | Live working demonstration to Provincial Governor: interactive GIS map, 12+ schools listed, student card upload verified, and Facebook share tracked live. | **40%** | **$19,400.00** | **79,540,000** |
| **PERIOD 3**<br>**Final Acceptance & Handover** | **Steps 6, 7, 8:** Server Hardening, 37 Automated Tests, Training & Warranty | 100% test pass verified (37 tests / 204 assertions), 3-day training workshop for 8 districts completed, full Git source code transferred, and SLA activated. | **30%** | **$14,550.00** | **59,655,000** |
| **TOTAL** | **Full Turnkey Implementation (Steps 1 through 8)** | **Complete delivery of software, data sovereignty, training & 12 months SLA** | **100%** | **$48,500.00** | **198,850,000** |

**Leadership Payment Security: Every period disbursement is protected by strict performance milestones. If a step deliverable does not satisfy the provincial inspection committee, funding remains in the treasury until defects are resolved.**

# 6. Financial Return on Investment (ROI) & 5-Year Sovereign Savings

Direct comparison: Leasing proprietary foreign software vs. owning the sovereign KSP-DMS platform

| Budget Cost Category | Proprietary Foreign Cloud Solution | Sovereign KSP-DMS Solution | 5-Year Net Provincial Savings |
|---|---|---|---|
| **Annual Software User Licenses** | $18,000 / year ($1,500/month for 50 users) | **$0.00 / year (Unlimited users forever)** | **+$90,000.00 USD** |
| **Cloud Hosting & Bandwidth Fees** | $4,200 / year (Cloud database & ingress/egress) | **$0.00 (On-premise server at Provincial Hall)** | **+$21,000.00 USD** |
| **Student Card Media Storage Fees** | $1,200 / year (Third-party cloud storage buckets) | **$0.00 (Secure local encrypted drive)** | **+$6,000.00 USD** |
| **Data Privacy & National Sovereignty** | Citizen data stored abroad; privacy compliance risks | **100% Sovereign Provincial Control** | **Priceless National Security** |
| **Total 5-Year Fiscal Impact** | **$111,000.00+ USD** | **$48,500.00 Fixed One-Time Capital** | **NET SAVINGS: +$62,500.00 USD** |

# 7. Executive Conclusion & Leadership Approval Signatures

Final endorsement and formal authorization to commence project implementation

**Executive Summary for His Excellency the Provincial Governor:**

The KSP-DMS platform represents a high-impact, transformative investment for Kampong Speu Province. It consolidates municipal demographic intelligence, provides real-time visibility across all 12+ public schools, mobilizes over 5,000 youth volunteers with verified student cards, and delivers a transparent Facebook Attribution Radar. By disbursing funds across 3 performance-verified periods ($14,550 -> $19,400 -> $14,550), the Provincial Administration assumes zero financial risk while saving over $62,500 in licensing costs over 5 years.

| PREPARED & SUBMITTED BY: | REVIEWED & VERIFIED BY: | APPROVED BY: |
|---|---|---|
| _____<br>**Lead Solutions Architect**<br>IT Implementation Team<br>Date: ____ / ____ / 2026 | _____<br>**Director of Planning & IT**<br>Kampong Speu Provincial Administration<br>Date: ____ / ____ / 2026 | _____<br>**H.E. Provincial Governor**<br>Kampong Speu Provincial Administration<br>Date: ____ / ____ / 2026 |