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ITN distribution planning in a resource-constrained context

Driving cost-efficiencies in ITN campaign digitalization

July 2025

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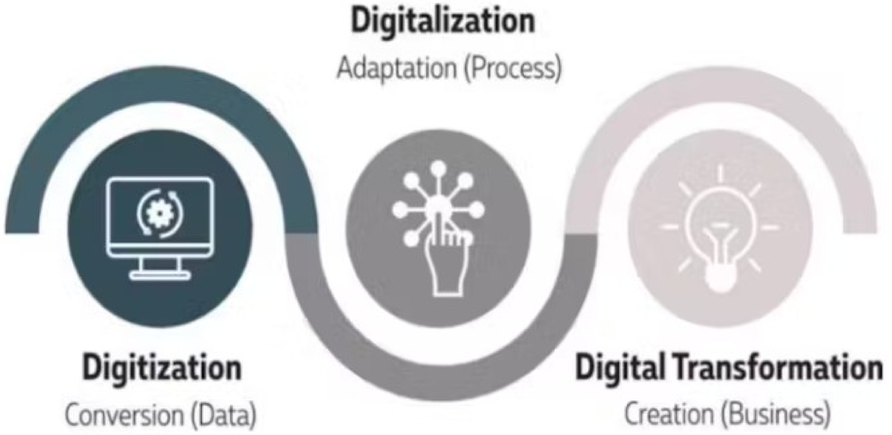
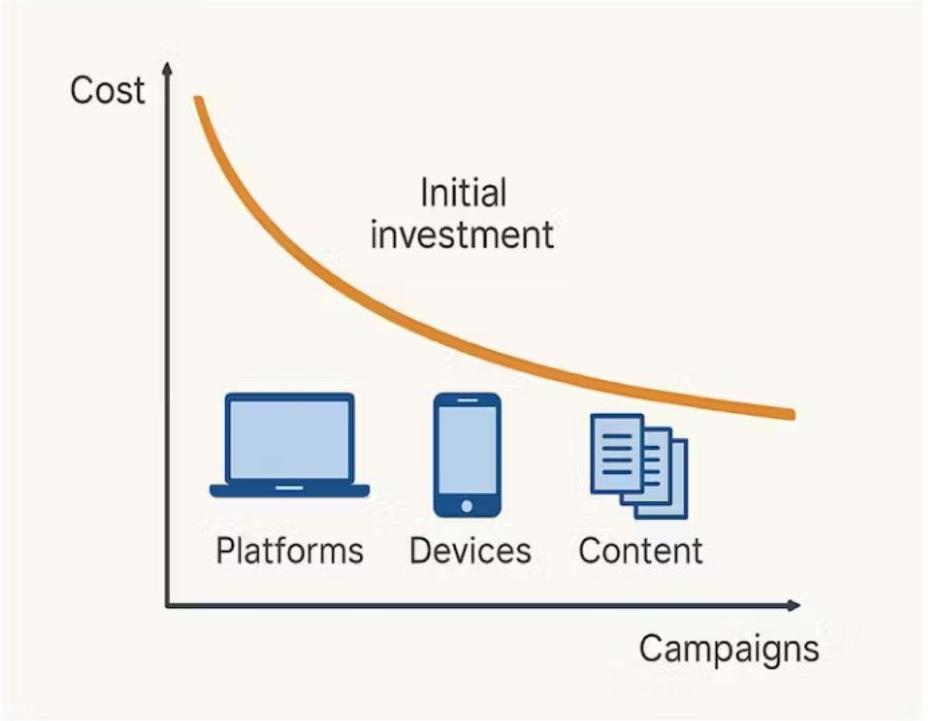
Digitalization as a process

- Digitalization is an ongoing process of redesigning business processes using digital technologies, rather than a simple conversion of paper to digital forms (Kubrak et al., 2023)
- *Digitalization is NOT a one-off conversion of paper forms; it's an ongoing process of redesigning how work gets done*



Digitalization is a long-term cost efficiency, not just “going paperless”

- Upfront digital costs spend (devices, setup) are is recouped over time as multiple platforms, devices, and data are reused driving down cost per campaign and reducing leakages.
- Treat every campaign cycle as a chance to refine processes, trim costs, and reuse assets—not to “start over.
- Build the digital architecture to serve multiple use cases (ITNs, IRS, SMC, routine services) so infrastructure, integrations, and training assets are shared and costs are spread across programs.



Sustaining digitalization as a strategic priority

- Many countries' digital health landscapes are fragmented—multiple partners and disease programmes deploy overlapping tools and platforms.
- NMCPs are expected to "do more with less," yet they often lack visibility into what actually drives digital costs.
- Budget reductions put digital investments at risk because digitalization is still perceived as a "nice to have" rather than a "need to have."
- Cutting digitalization risks poor data quality, leakages, and weakened accountability.
- Digitalization adds unique value: built-in validations prevent household inflation, and geo-referenced data repositories can serve multiple programmes—streamlining planning, budgeting, and implementation.

From our earlier discussions, name one campaign component and one specific way digital tools can reduce its cost? (component - cost saving)

Deploying BYOD

Data collation, cleaning and reporting

E-learning

Dénombrement: reduction des coûts de production des outils

Registration by using mobile phone

Boyd

Printings

Data review and analysis

1

13

From our earlier discussions, name one campaign component and one specific way digital tools can reduce its cost? (component - cost saving)

data

Central supervision
Data collection cleaning
Training

Printings

Reuse of campaign data

Electronic job aids

Microplanning, household registration, warehouse assessment, trainings, e-training

Analysing HHM data to modify distribution capping if required

Printing of tools- ODK form deployment

1

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From our earlier discussions, name one campaign component and one specific way digital tools can reduce its cost? (component - cost saving)

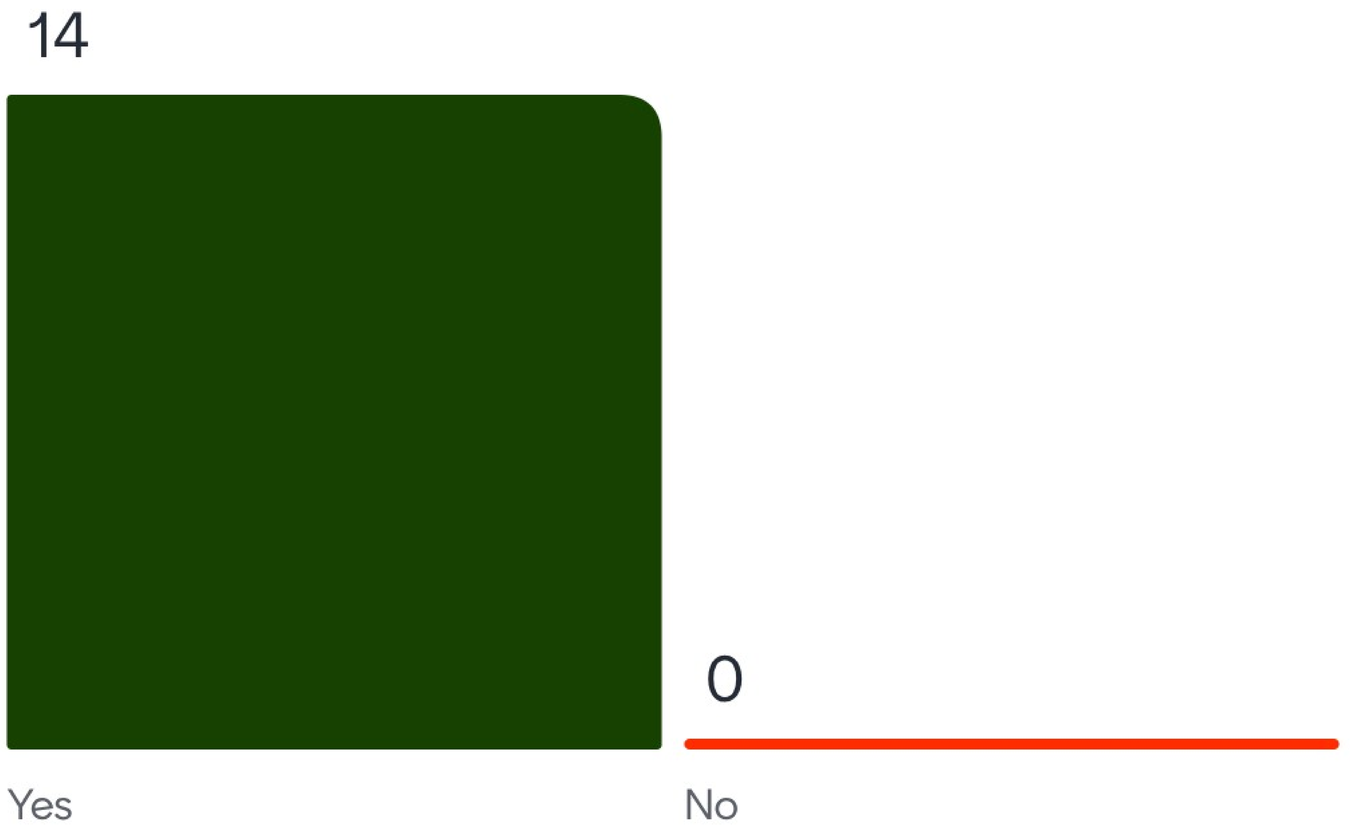
data reuse for next campaigns - will be cost saving at later stage

Yes

1

13

If the budget were cut by 30%, should we keep digitalization?



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Improving cost efficiencies in digitalization of ITN campaigns

Top cost drivers in ITN campaign digitalization

- **Software/platform costs** (customization, hosting, licenses)
- **Devices & peripherals** (phones/tablets, power banks)
- **Connectivity & Internet** (SIM cards, **data bundles**)
- **Technical support & maintenance** (digital partners/IT teams)
- **Human resources/per diems** for digital data collection & training
- **Digital payments & financial reconciliation fees** (mobile money charges, KYC)

Up-front and recurring cost of digitalization can wipe out expected savings if unmanaged

Campaign components and cost drivers for digitalization

Macroplanning / Microplanning

- Platform and maintenance cost (campaign and mobile device management) + hosting or server cost
- GIS micro-planning: GIS software fees, imagery licence, data collection fees, training

Household registration

- Mobile devices, vouchers, internet access, SIM/data subscription, BYOD incentives

Logistics and supply chain

- Device warehousing, forward and reverse logistics,buffer stock, setup/configuration, insurance, misplace/missing or faulty devices

Training and supervision:

- ICT4D officers, Technical support, digital partners, extra in-person training days, additional staff for configuration

ITN distribution

- SMS, vouchers, batteries/power banks, SIM/data bundles

Monitoring and supervision

- Mobile data, mobile devices, analyst labour etc.

Payments/Incentives:

- Transaction fees, KYC

Beyond those listed, what are other significant cost drivers of digitalization?

Le paiement des acteurs

Maintenance of country data repository

Training

starlink

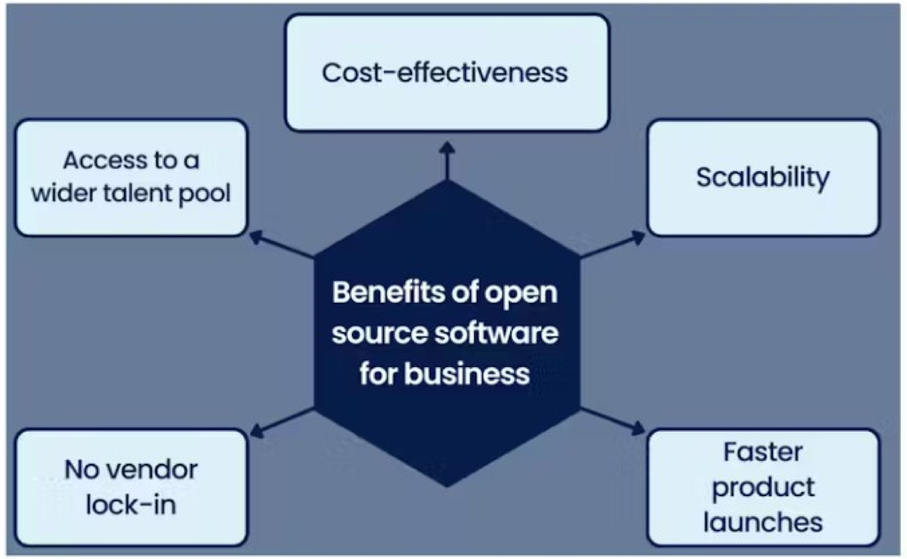
La synchronisation des donnees

Les logiciels de gestion

Computers and physical digital systems

Macro & micro-planning

- Plan for digitalization with a long-term vision by creating a central data repository for future campaigns and cross-program use.
- Reuse data from previous digital campaigns to support microplanning.
- Prioritize open-source/low-cost tools and shared infrastructure instead of buying or building anew.
  - Example: QGIS, free Sentinel imagery, and collaborations with universities or GIS partners for microplanning



Macro & micro-planning

- Host data on an existing, secure Ministry of Health (MoH) cloud tenant or another low-cost, compliant cloud option rather than setting up a new environment.
- Reuse and integrate open access digital platforms: only fund new systems when no suitable solution exists.
- Minimize use of multiple platforms: use one platform (or a small, interoperable set) to streamline coordination and ensure consistent data.
- Procure only the devices and accessories you truly need (power banks, solar chargers, etc.)

What other cost efficiencies can we find in macro/microplanning digitalization?

How can we reuse reliable data from past ITN or other health campaigns to avoid re-registering households?

Use of ODK forms for data collection/digitization

Cross-reference from existing sources

Leverage on database from the country that's reliable as a form of HH verification Process to go directly to distribution (eg national identity)

Intentional scheduling of programs

Household registration and distribution

- Use a Bring Your Own Device (BYOD) model for campaign workers, supervisors, and monitors where feasible, and supplement with a small pool of project devices in areas where BYOD isn't practical.
- Share and rotate government-owned tablets/phones across malaria, NTD, EPI and other programs instead of purchasing new devices each campaign.
- Negotiate zero-rated data/SMS or bulk data bundles with telecoms, including through their CSR programs.
- Build the app offline-first and schedule batch syncs at nightly/weekly hubs to cut data costs.
- Integrating HHR with other disease interventions
- Explore updating HHR data from previous campaigns—only capture new or changed households to avoid full re-registration each time.
- Where CHW registers are already digital, leverage them instead of conducting a separate HHR.

Household registration and distribution

- Establish mechanisms (routine updates, integration with other activities) to keep household data current and avoid full re-registration each campaign.
- Phase HHR and distribution to align with other disease activities and available resources, maximizing shared assets and staff.
- Explore options to update household registration data to avoid repeating full registration in every campaign
- Negotiate zero-rated data or bulk bundles with telecoms.
- Use mobile device management (MDM) to push updates remotely, lock/wipe lost units, and avoid costly in-person support
- Replace paper vouchers with cheaper digital options (QR/SMS/USSD tokens, household IDs) to cut printing and reconciliation costs.

What other cost-saving opportunities can we find in HHR and ITN distribution digitalization?

Use platform or apps that can work on bear minimum operating system

BYOD feasibility: conduct situational analysis

- Examine context (regulations, workforce profiles, connectivity, security posture) before deciding.
- Compare total cost of using BYOD (stipends, data bundles, support) versus procuring new devices.
- Map who has compatible phones/tablets (OS, RAM/storage, battery health) and where the gaps are.
- Set minimum specs, pre-test common handset models, and keep apps lightweight/offline-capable.
- Share a simple checklist/template staff can use to self-assess their personal device's suitability.
- Identify high-risk roles or areas (e.g., HHRs campaign staff) that still require dedicated, managed devices.
- Decide on incentives early e.g., airtime or data top-ups or cash stipends for bringing their own devices.
- Define replacement or repair coverage for any damage sustained during programme work.

Considerations for BYOD

- Enforce end-to-end encryption, strong authentication, and the ability to remotely lock/wipe lost devices.
- Align with national data-protection rules; capture consent/agreements and secure any required approvals.
- Provide a tiered help desk, quick-start guides, and a small pool of spare devices for swaps.
- Enable offline capture with scheduled syncs; negotiate zero-rated or bulk data packages with telecoms.
- Define stipends/data reimbursements and a clear policy for lost or damaged devices, plus rapid replacement procedures.
- Specify how often and where data must be synced in no-network zones.
- Disable or restrict app access right after each major exercise (HHR, distribution) to prevent unauthorized use and data drift.

Alternatives to vouchers for ITN campaigns

- While vouchers remain an essential component of both digital and non-digital ITN campaigns, consider lower-cost or no-cost alternatives.
- Where widely available, use existing national identification systems (e.g., ID cards, voter IDs) and telephone numbers in place of vouchers.
- Explore digital alternatives such as e-vouchers, e-tokens, or SMS-based solutions.
- Where vouchers are necessary, limit to one per household.
- Consider locally printed vouchers or coded cards instead of imported high-cost vouchers.

What risks do you foresee with a Bring Your Own Device (BYOD) approach?

data protection not respected

Access to the application and data protection

Quality of device

Increased complexity when it comes to IT support

Battery health issue on old devices

Possible Data loss

IT support can be difficult

Using devices for multiple purposes resulting in issues

What risks do you foresee with a Bring Your Own Device (BYOD) approach?

dommage et panne occasionnels

La qualité des appareils

Devices having less battery backup as may be old models

Mélange de données personnelles et professionnelles/ Les appareils personnels peuvent ne pas supporter l'application de la campagne

Risque de perte des données

Air time

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What additional situational analyses are needed before adopting BYOD?

How should we compensate staff who use their personal devices?

Internet

no compensation - just internet provided to be able to work

Reimbursement for Data Usage

Frais de location

Airtime remuneration

Air time

If we drop physical vouchers, what risks or challenges should we anticipate and manage?

Logistics and supply chain

- Distribute tablets (and SIMs/power banks) directly during sub-national level trainings, instead of arranging a separate delivery circuit.
- Combine supervision visits with device collection, troubleshooting, and redistribution to avoid extra delivery cost.
- Use decentralized drop-off points for last-mile delivery and plan reverse logistics at the same time to bring devices back for the next phase.
- Piggyback on existing LLIN transport, warehousing, and inventory systems, and other health programs whenever schedules align.
- Label every device with an asset tag or QR code and record it in a live log so you can locate missing units quickly and prevent losses.
- Document and enforce a policy for lost or damaged devices that balances accountability with rapid replacement.
- Keep equipment in secure, climate-controlled rooms between phases to extend its usable life.
- Define when to maintain, redeploy, retire, and recycle devices to prevent premature replacement and e-waste.

What additional cost-saving ideas do you see for logistics and supply chain digitalization?

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Training and technical support

- Produce 2–5-minute video clips or interactive modules for most topics, and limit in-person sessions for hands-on device/app setup and troubleshooting.
- Train a core group of national, regional, and district ICT/HIS staff who can in turn train frontline users—reducing dependence on external ICT4D consultants.
- Leverage existing ICT capacity to provide technical assistance during campaigns.
- Replace non-essential field visits with virtual supervision groups (WhatsApp groups etc) and targeted field visits.

Supervision and monitoring

- Use digital technologies to support supervision and monitoring vs people having to be in the field
- Dashboards allow for rapid visualization of data, identification of issues (progress, inconsistencies in data, etc.)
- Hold short, virtual daily debriefs focused on data trends and corrective actions.
- Using AI to generate reports for actions by supervisor based on the data and allow targeted improvements
- Use moderated messaging groups (WhatsApp/Telegram/etc.) for quick updates, micro-training links, and troubleshooting tips.

Are programmes making effective use of digital data for campaign supervision and monitoring?

What ways can we use digital tools more effectively for supervision and monitoring?

What practical guidance would help you implement these cost efficiencies?

Thank you