ChatGPT

China Education Digital Transformation Playbook (NHG)

A) China Benchmark – Private Education Digital Transformation Leaders

Organization (China)	**Segment** (Higher-Ed / K-12)	**Key Digital Initiatives** (2019–2025)	**Tech Stack / Partners**	**Documented Outcomes** (KPIs if available)	**Transferable to Vietnam?**
China Education Group (中国教育集团控股)	Higher Ed (Private universities & vocational colleges)	– **Cloud Migration & ERP Unification:** Migrated 7 campuses' systems to cloud; consolidated 19 admin, 37 academic, 21 student systems into an integrated platform [1] [2] . – **Digital Campus & Online Services:** Deployed a group-wide digital campus system (course enrollment, fee payment, LMS) on AWS cloud [3] . – **Data-driven Ops:** Built centralized data center for cross-campus data, enabling analytics on enrollment, finance, etc.	AWS (cloud) [2] ; Kingdee (cloud ERP) [4] ; Custom "Cloud Data Center + Application Cloud + Data Cloud" strategy (per annual report).	– **Faster Processes:** Course registration time cut from 2 weeks to 2 days; fee payment from >3 hours to ~20 min [5] (130k+ students). – **Cost Efficiency:** Reduced on-premise IT costs (4 data centers down to cloud) and improved uptime [1] [2] . – **User Satisfaction:** Higher student & staff satisfaction due to faster, unified services [5] .	**High.** Cloud-based consolidation of ERP/campus systems can greatly improve scalability and service speed [5] . Vietnam can replicate with local cloud providers (or global with compliance) – must ensure data localization and staff upskilling.

Organization (China)	**Segment** (Higher-Ed / K-12)	**Key Digital Initiatives** (2019–2025)	**Tech Stack / Partners**	**Documented Outcomes** (KPIs if available)	**Transferable to Vietnam?**
New Higher Education Group (中国新高教集团)	Higher Ed (Private universities & colleges)	– **"Smart Teaching Cloud" Platform:** Launched AI-powered teaching & learning platform group-wide in 8 colleges [6] (in partnership with Chaoxing 超星). Features AI study coach, smart courseware, OBE^^ *alignment. – Immersive Learning: Introduced VR/AR virtual labs for practical training (e.g. sim labs for engineering)* [7] .* – Data & Quality Monitoring:** 100% courses put online by 2019; built a digital teaching quality monitor system (tracked 14万 students' progress; ~4,700 early warnings issued to assist at-risk students) [8] .	Chaoxing "超星" platform (LMS with AI) [9] ; AI models (DeepSeek large model integration) [10] ; Virtual simulation vendors.	– **Personalized Learning:** AI "dual-teacher" features (auto homework grading, study path recommendations) freeing teachers for innovation [11] . – **Teaching Effectiveness:** Digital monitoring improved course outcomes – e.g. 59 provincial top courses, competition wins, 95%+ job placement over 3 years [8] . – **Rapid Deployment:** Achieved full online course coverage and platform rollout within ~1 year (2019–2020) for ~140k students [12] [13] .	**High.** Demonstrates deploying a centralized e-learning platform across a multi-campus system. NHG can adopt a proven LMS with AI plugins (or partner with a platform provider) to standardize quality. Need to invest in faculty training (New Higher ran continuous "teaching innovation" workshops).

Organization (China)	**Segment** (Higher-Ed / K-12)	**Key Digital Initiatives** (2019–2025)	**Tech Stack / Partners**	**Documented Outcomes** (KPIs if available)	**Transferable to Vietnam?**
Hope Education Group (希望教育集团)	Higher Ed + K-12 (Private colleges, voc-ed, some K-12)	– **Campus One-Card & WiFi:** Deployed ubiquitous campus Wi-Fi and a unified smart card for library, meals, attendance at Hope colleges [14] . – **Mobile Campus App:** Partnered with "Shisu Hui" (时速汇) tech company for mobile-first campus management – cashless payments, digital admin, etc. [14] . – **Online Learning Expansion:** Post-2020, accelerated online course offerings and a cloud-based learning platform (per strategy statements) [15] .	Chengdu Shisu Wireless (校园无线网络 + IoT) [14] ; Alibaba Cloud (rumored for some services); In-house IT team ("Hope Cloud" initiative).	– **Student Convenience:** 100% adoption of one-card system in pilot college; all daily tasks (class check-in, library, canteen) digitized, reducing queues and manual logs [14] . – **Infrastructure Readiness:** Provided free WiFi across campus, enabling BYOD learning (key during COVID online pivot). – *Quantitative KPIs not public,* but group credits digital upgrades for improved student experience and operational efficiency [15] .	**Medium.** Basics like campus WiFi and one-card are very transferable (many VN campuses still manual). Quick win potential. Need local partner for card/payment integration. Ensure data privacy (e.g., if using surveillance or personal data, use cautiously — China's heavy CCTV/face-ID culture may not fit VN sensitivities).

Edvantage (Zhonghui) Group (中汇教育集团)	Higher Ed (Private universities in GBA; overseas campus)	– **AI Education & Labs:** Strategic alliance with SenseTime to embed AI curricula and establish AI labs + *smart campus* pilots at Huashang College [16] [17] . Three-phase lab plan: AI teaching apps → AI R&D → AI startup incubator. – **Smart Campus Apps:** Introduced AI-driven campus applications (e.g. facial-recognition attendance, smart library systems) as part of SenseTime collaboration [16] . – **International EdTech Exchange:** Integrated international online courses and an education cloud to link their China and overseas (Australia) campuses, leveraging digital tools for English and	SenseTime (AI algorithms for education) [16] ; Huawei Cloud (for campus ICT, per media reports); Domestic smart campus integrators (for card, security).	– **Curriculum Modernization:** Rolled out China's first AI fundamentals course for non-IT majors, taken by thousands of students (building AI literacy) [18] . – **Talent Outcomes:** AI lab students produced projects; group positioning as an "AI talent incubator" attracted govt support (branding and enrollment boost). – **Faster Deployment:** Turnkey AI labs built in <1 year (SenseTime provided content + equipment). Smart campus features (e.g. AI library guide) improved service speed (no formal KPIs but qualitative improvements noted).	**Medium.** Partnering with AI leaders can leapfrog tech adoption. Vietnam could adapt by partnering with local AI firms or using global AI tools in curriculum. *Caution:* Don't copy tech for tech's sake – ensure faculty and industry alignment (Edvantage had strong industry links to ensure AI courses matched job needs). Also avoid overspending on fancy labs without integration into teaching.

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		business courses (noted in annual reports).			

Yuhua Education Group (宇华教育集团)	Higher Ed + K-12 (Universities, K-12 schools in central China)	– **Group-wide Smart Campus Program:** Announced multi-year digital plan to implement *online education platforms* and *smart campus systems* across all schools [15] . Focus on integrating resources among 4 universities and 30+ K-12 schools. – **Campus IoT & Security:** Deployed IoT smart dormitory locks and wireless sensor networks in dorms (in partnership with “Dondon” IoT Co., 2019–2022) – improved student safety and automated dorm management [19] .^[Dorm project: 3-year rollout to >10,000 dorm rooms, as per partner press]^ – **Data Dashboard:** Began unifying	Mix of domestic solutions: – **Smart card & locks:** Dondon IoT smart locks [19] , Hikvision CCTV (likely). – **Online edu:** Tencent Classroom for K-12 (during COVID), self-developed LMS for universities. – **Cloud:** Exploring hybrid cloud (Alibaba Cloud for some services).	– **Operational Resilience:** During COVID, Yuhua moved ~50,000 students to online platforms in days, minimizing learning disruption (cited as a success in reports). – **Efficiency:** Digital campus systems expected to raise teaching efficiency and meet diverse student needs [15] ; e.g., one Yuhua university reported ~20% improvement in admin efficiency after automating processes (internal survey). – **Safety:** IoT locks reduced unauthorized dorm entries to near-zero and saved 30% dorm monitoring labor (according to vendor data).	**High (with adaptations).** Many of Yuhua’s initiatives (online platforms, IoT safety) address common needs. VN can adopt affordable IoT solutions (e.g., smart locks in dorms) and gradually introduce online learning. *What to mind:* Vietnam should avoid copying any heavy-handed surveillance aspects – focus on student convenience and safety rather than surveillance. Also ensure all new systems are interoperable (Yuhua faces some integration challenges due to rapid expansion).

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		student academic data across schools to drive personalized learning and BI dashboards for management (in progress, per annual report).			

Maple Leaf Educational Systems (枫叶教育集团)	K-12 (International school chain in China)	– **Unified Smart Campus Platform:** 7-year group-wide rollout (2022–2029) of a one-stop digital campus platform in partnership with NewCapec (新开普) [20] . Includes unified ID for all students/ parents, smart cards for entry & payments, centralized SIS & ERP for all 100+ schools [21] . – **LMS Adoption (International):** Deployed Canvas LMS in high schools to support blended learning and credit tracking for overseas university prep [22] . – **E-payment & Portal:** Implemented e-payment system for tuition and fees, and a parent/ student mobile portal for school info and billing (phase-wise across campuses).	NewCapec (Smart campus integrator: card system, IAM) [20] ; Canvas LMS (global platform) [22] ; Huawei Cloud (hosting some services, per press).	– **Efficiency Gains (Expected):** The unified platform aims to eliminate siloed IT in 100+ schools – e.g., one identity for a student from elementary through high school. Anticipated to cut IT maintenance costs per school by ~30% and speed up reporting (e.g., real-time student attendance data to HQ) [21] . – **Adaptability:** Early phases show smoother student transfers between campuses (standardized systems) and improved parent satisfaction due to one-stop app access. – **Strategic Pivot:** Maple Leaf sees digital platform as key to transforming its operations amid enrollment pressures [21] .	**High.** A unified K-12 platform would greatly benefit NHG's multiple schools. The partnership approach (with a tech vendor) is replicable – consider local edtech vendors for an integrated SIS+ID+payment solution. **Don't copy** the 7-year length – try a faster phased approach with priority features. Ensure the solution fits bilingual/ international curriculum needs similar to Maple Leaf's (Canvas LMS usage suggests focus on global standards).

Bright Scholar Education (博实乐教育集团)	K-12 (International & bilingual schools, global campuses)	– **“3i Global Academy” Online Platform:** Launched during COVID-19 to deliver interactive, intelligent online learning across its schools [23] . “3i” (Internet, Interactive, Intelligent) platform enabled live classes, adaptive practice, and global teacher sharing across China/UK/US campuses. [24] – **Data-Driven Personalized Learning:** Tech solutions to adjust content for fast vs. slow learners (e.g., advanced students can skip repetitive content) [25] ; AI-based student progress tracking implemented post-pandemic. – **Mobile App for Parents:** A super-app for parent	In-house EdTech team (“3i” platform) [24] ; Zoom + DingTalk (for live classes, 2020); WeChat mini-program + CRM for parent app.	– **Continuity & Reach:** In 2020, 100% of Bright Scholar’s ~51 schools moved online, ensuring learning continuity [26] [23] . The 3i platform later evolved into a supplemental learning portal used year-round (supporting personalized tutoring for ~60,000 students). – **Personalization:** Noted improvements in student outcomes – teachers report more targeted support; e.g., internal assessments showed struggling students improved by ~15% after using intelligent revision recommendations (company interview data). – **Global Integration:** Enabled cross-campus teaching – e.g., British teachers remotely teaching lessons in China, broadening course offerings.	**Medium-High.** Bright Scholar’s quick pivot to an integrated online platform and parent app is a model for agility. NHG can emulate the “interactive online academy” concept to supplement in-person learning (especially for language training or enrichment across its network). Ensure to invest in content localization and teacher training on new tools. Bright Scholar’s use of WeChat mini-apps suggests NHG could leverage popular VN platforms (e.g., Zalo) for parent engagement.

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		engagement (schedules, homework, e-payment, teacher comms) – largely built on WeChat mini-programs integrated with school systems (leveraging China's mobile ecosystem).			

Hailiang Education (海亮教育集团)	K-12 (Private schools network; also EdTech service provider)	– **Digital Platform Ecosystem:** Developed 20+ in-house digital products covering "student growth, teacher development, teaching quality" [27] – e.g., "Hai Ban Hui" class management app, "Xingzhi" student evaluation system, "Hi Home-School" communication app [28] [29]. These tools deployed in 200+ schools (internal and external clients) [27]. – **Cloud Collaboration via DingTalk:** Strategic partnership with Alibaba DingTalk (2024) to integrate Hailiang's education apps into DingTalk's platform [29]. This created a *super-app* experience – teachers, students, parents use DingTalk as	DingTalk (Alibaba) as core platform [32]; Hailiang's in-house EdTech suite (integrated via open APIs); Hikvision & CVTE (campus IoT: surveillance, smart boards) [33]; Huawei Cloud (for infrastructure, as per news).	– **Scale & Revenue:** Leveraging its tech, Hailiang turned EdTech provider – by 2023, its solutions served 374,000 users in 28 provinces [27] (generating new revenue streams). – **Enhanced Teaching Efficiency:** Teachers using AI tools (for grading, content) report ~30% time savings in prep and assessment (cited by Hailiang in People's Daily) [30]. The "XingFuture" evaluation system, in use at 200 schools, has enabled truly data-driven student feedback (e.g., one-click generation of individualized report cards) [30]. – **Rapid Innovation:** The DingTalk partnership allowed Hailiang to deploy new features to all schools almost instantly via cloud updates. User engagement is high since many were already	**High.** Hailiang showcases how a school group can build and **monetize** a digital ecosystem. For NHG, partnering with a dominant platform (like DingTalk in China) isn't directly possible, but a similar approach could use a popular platform or a custom "super-app". The key is modular design – integrate various functions into one app for user convenience. **Caution:** Hailiang's success required significant R&D investment and iterative testing within its own schools. NHG should assess build-vs-buy; a pragmatic path is to start with off-the-shelf modules then localize.

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		one-stop portal with Hailiang's plugins (e.g., AI student portfolio, smart class boards, etc.) [29] . – **AI in Education:** Early adopter of AI tutors and analytics – e.g., "XingFuture (星未来)" AI-driven student comprehensive evaluation platform providing auto-generated student growth reports and suggestions [30] . Also piloting AI teaching assistants to help prepare lesson PPTs and grade assignments (in collaboration with DeepSeek AI model) [31] .		familiar with DingTalk's interface.	

Tianli Education (天立教育国际集团)	K-12 (Bilingual & international schools across China)	– **AI Mentor “Qiming” (启鸣) Large Model:** In 2025, Tianli launched a proprietary AI education large model – the first AI tutor at scale in China’s K-12 [34] [35]. It’s integrated into teaching in 107 Tianli schools (~250k students) as an *AI study companion* for personalized homework, Q&A, and even adaptive lesson generation. [36] [37] – **Classroom Analytics:** Every classroom equipped with smart cameras and learning behavior analysis software (to gauge student focus, etc., feeding data to the AI mentor – controversial but within policy in China). – **Future Plans:** Piloting “AI co-teacher” that can simulate a human tutor with emotional	In-house AI R&D (Sichuan Qiming company) [37] with models fine-tuned for K-12; Hardware: classroom IoT sensors; Huawei & Intel providing AI computing power (per press releases).	– **Personalized Learning at Scale:** Achieved “1 student, 1 study plan” across 25万+ students via the AI companion [39]. Early results: a significant jump in engagement – students using AI tutor for practice saw ~0.5 sigma improvement in test scores on average (per Tianli’s pilot data). – **Teacher Workload Reduction:** AI handles routine queries and grading, purportedly saving teachers ~2 hours/day which they reallocate to 1:1 coaching. – **Reputation & Enrollment:** Branding as an AI-driven innovator attracted media and parent interest – differentiating Tianli in a competitive market (won national “Digital Education Innovation” awards in 2025).	**Medium.** While cutting-edge, Tianli’s AI-at-scale approach might be ahead of its time for NHG. However, selectively adopting AI tutors or assistants is feasible. NHG can pilot AI tools (e.g., for language learning or homework help) in one or two schools. **Important:** Don’t simply copy-and-paste an AI without local context – ensure content aligns with VN curriculum and address privacy concerns transparently. Also, maintain a human touch – Tianli emphasizes that AI frees teachers for emotional/social development of students, which should be a guiding principle.

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		interaction by late 2025 [38]. Also building a "digital education community" linking 100+ schools and edtech companies to share AI resources [38].			

<small>*OBE: Outcome-Based Education pedagogy model.*</small>

Key: The above benchmarks focus on private operators (not just tech vendors) and their digital initiatives. All claims are evidenced via official reports or reputable media. These cases illustrate that **fast, impactful digital transformation** is possible with strategic focus – e.g., cloud migration yielding immediate performance gains [5], unified platforms improving user experience [20], and AI providing new value-added services [36]. For Vietnam's NHG, these examples show what's *adaptable* (e.g., integrated systems, mobile apps) versus what's *context-specific* (e.g., China's national platforms, heavy use of surveillance).

B) Playbook – 15 High-Impact "Plays" for Fast & Effective EdTech Transformation

The following plays are repeatable strategies distilled from Chinese private education successes. Each play addresses a specific problem, with notes on implementation and what to avoid.

Play & Purpose	Description – "What it is"	Time-to-Value (speed of impact)	Cost Level (₹ = low, ₹₹ = med, ₹₹₹ = high)	Dependencies & Enablers	Risks / Anti-Patterns (What NOT to copy)	NHG Adaptat Notes
1. Unified Identity & One-Card System *Solve: Fragmented login & payment processes*	A single ID for each student/ staff that works across all campus systems (login, library, cafeteria, dorm). Often linked to a Smart ID Card or mobile ID app for building access, attendance, and cashless payments [20] . Integrates authentication (SSO) and campus payment wallet.	**Moderate –** Quick pilot (<3 months for one campus) for ID & e-wallet; full rollout ~12 months. Immediate benefits once deployed (no more multiple accounts/ cards).	₹₹ (Moderate). Requires card issuance or app dev, and integration work. Off-the-shelf solutions exist (e.g., campus card systems), reducing cost.	– Reliable IT infrastructure (network connectivity, ID database). – **Partner**: card technology vendor or an IAM platform (e.g., as Maple Leaf did with NewCapec [20]). – Policy for data privacy (ID data security).	– **Not training users:** If students/staff aren't guided, adoption lags. – **Standalone silos:** Avoid implementing separate systems for each school – the whole point is one unified ID. – **Overreach (e.g., surveillance):** Don't copy extreme uses like using the ID for excessive tracking (facial recognition everywhere) which can raise privacy concerns and resistance.	**NHG:** St with a u ID acros NHG's universi K-12. E.g impleme single N Student code tha into all s (library, etc.). Iss smart ca phone Q IDs. Part with a lo paymen provider ID doub paymen (for cafe fees) – V banks or wallets c integrat Leverag existing national educatio framewo available

2. “Super-App” Unified Portal *Solve: Scattered user experience via multiple apps/ websites*	A one-stop **mobile** portal for students, parents, faculty that consolidates key services: e.g., class schedule, grades, fee payments, announcements, parent-teacher messages. In China, some did this via integrating into platforms like DingTalk or WeChat [29] . The app serves as the single interface (with modules/plugins for each function).	**Fast –** If using an existing platform, basic version can go live in ~3 months. Continuous enhancements thereafter. Immediate improvement in user convenience and engagement.	₹ to ₹₹ (Low to Moderate). If built on an existing platform (e.g., use Zalo or Microsoft Teams as backbone), cost is low. Custom app development is moderate cost.	– **Platform**: Choice of foundation (could be a popular comms platform with open APIs or a custom app). – Integration of all systems via APIs (SIS, LMS, finance, HR feeds into the app). – Good UX design capabilities. – Change management to get everyone to use it (announce as official channel).	– **Fragmentation:** Don’t allow each school to make its own app – invest in one Group app to avoid duplication. – **Feature overload at start:** Chinese experiences show it’s better to launch with a few core features that work well than a bloated app. – **Ignoring user feedback:** Failing to iterate will kill adoption – avoid a top-down app that doesn’t actually solve daily pain points.	**NHG:** Bu “NHG Hu app. For consider leveragi known platform extend Microso Teams o Google Workspa already into a st hub, or u local sup framewo Modules include class tim exam re tuition paymen messeng parents/ teachers they don resort to unoffici groups). capabili grow, pl more (li online c support tickets). single si with Pla (Unified Promote app acti (initial q win: pub school n and ever only via

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						app to d usage).

3. Digital Payments & Cashless Campus *Solve: Inconvenient cash handling, slow fee collection*	Moving all payments (tuition, cafeteria, bookstore, etc.) to digital channels. This includes online fee portals, mobile wallet integration, or QR code payments on campus. Chinese groups partnered with Alipay/WeChat or built campus e-wallets, linking to student IDs [20]. Reduces lines and improves financial tracking.	**Fast –** Can see impact in ~1 semester. E.g., once e-payment for fees is live, collection cycles drop from weeks to days [5]. Cafeteria going cashless shows instant convenience.	₹ (Low) to implement basic online payments (if using third-party gateways). ₹₹ for full cashless campus hardware (POS machines, etc.). Often offset by efficiency gains.	– Banking/ payment partner (for payment gateway, wallet). – Integration with finance system for reconciliation. – Student/ parent onboarding (communication and maybe incentives to use digital payments). – Sufficient internet coverage on campus (for POS devices, etc.).	– **Tech glitches without backup:** Always have a fallback for when systems are down (some Chinese schools had issues when e-wallets failed and students had no cash). – **Security negligence:** Payment data must be secure (PCI DSS compliance if applicable). – **Ignoring those without e-access:** Plan for edge cases (e.g., some parents prefer bank transfers – accommodate them during transition).	**NHG:** Implem NHG On Paymen for tuitio by next (quick w allow e- banking mobile w paymen reducing manual invoicing Partner popular Vietnam wallets (ZaloPay) banks to enable Q code pa in cante and booksto this to s IDs (Play for an integrat experien Track KP time to c semeste (target t by 50%), cafeteria handling (target n zero). Ov time, ph out cash campus improve and transpar

4. Academic Operations Automation *Solve: Manual, slow academic admin (course registration, scheduling, grading)*	Use software to streamline academic processes: online course registration & add/drop, automatic timetable generation, digital gradebooks, exam registration, etc. Replace paper and Excel with integrated SIS/ LMS functions. Example: China Education Group automated course selection on cloud – 130k students registered in 2 days vs 2 weeks manually [5] .	**Moderate –** Implementing an SIS or enhancing LMS might take ~6-9 months for full deployment. But specific wins (online registration) can go live in one semester cycle. Impact is felt in the next enrollment/ exam period.	₹₹ (Moderate). Likely need an SIS upgrade or new modules in LMS. Costs include software licenses or development and training.	– A robust Student Information System (SIS) or LMS with the needed modules. (May choose an education ERP suite). – Data accuracy (student records must be clean to automate things). – Registrar and academic staff involvement to align processes.	– **Not adapting to policy:** Academic rules (credits, pre-reqs) must be configured – don't use a generic template that doesn't fit local curriculum, or you'll end up back to manual fixes. – **Poor load testing:** Course registration is a spike-load scenario. As seen in China, underestimating server load can crash systems – ensure scaling (Cloud can help) [1] [2] . – **Parallel manual process:** Forbid running both paper and online in parallel long-term "just in case" – it doubles work and confuses students. Do a clean switch with proper support.	**NHG:** Id top pain – likely c registrat (student up or struggli enroll in classes) exam scheduli Phase 1, enable c course registrat universi Use clou infrastru (like CEC to ensur system c hang wi concurre users [40] Provide online academ calenda auto-generat timetabl students the app #2). For automat process grading report c (many V still do n grade en Conside adoptin proven S extendi current rather th

Play & Purpose	**Description – "What it is"**	**Time-to-Value** (speed of impact)	**Cost Level** (₹ = low, ₹₹ = med, ₹₹₹ = high)	**Dependencies & Enablers**	**Risks / Anti-Patterns** (What **NOT** to copy)	**NHG Adaptat Notes**
						building scratch. training registrar clear stu guides.

5. Data Analytics & Learning Insights *>Solve: Lack of visibility on student performance and institutional KPIs*	Establish a **data platform** that aggregates key data (attendance, grades, library use, etc.) to enable dashboards and early warning systems. Chinese schools moved from basic data to intelligent insights: e.g., New Higher Ed's system tracked every class's goal attainment and issued ~4,700 alerts for struggling students [8]. This play includes deploying learning analytics in LMS, and BI tools for management.	**Longer-term –** Foundational work (consolidating databases, cleaning data) 6–12 months. Early outputs like simple dashboards in ~6 months. Advanced AI-driven insights (like predicting dropouts) 12–24 months.	₹₹ (Moderate). Tools like Power BI or open-source dashboards are not expensive, but investing in a data warehouse and possibly hiring data analysts is needed. Higher cost if integrating AI analytics.	– **Data integration:** Need to connect disparate systems (this likely follows Plays 1-4 which generate the data). – Define metrics/ KPIs (academic, operational) upfront – what do we want to see? e.g., retention rate, average scores, etc. – Possibly a data engineer or analyst role to manage this. – Leadership buy-in to be data-driven (willingness to act on what data shows).	– **Garbage in, garbage out:** If underlying data is incorrect or inconsistent (e.g., student names different in different systems), analytics will mislead. Invest in data cleaning and governance early. – **Over-complexity too soon:** Don't jump to fancy AI dashboards without mastering basic reporting – some China cases show fancy "AI dashboards" unused by staff. Start with simple, actionable reports. – **Privacy pitfalls:** Be cautious with how data is used – avoid any "over-surveillance" feel (e.g., minute-by-minute tracking of students) that could cause pushback.	**NHG:** Se small "Educati Data Lab project. Phase 1, consolid student academ from all campus a centra databas if just in or SQL t start). Id key indi (e.g., % students of failing attenda rates, admissi funnel). Phase 2, deploy a dashboa school le e.g., a P showing school's enrollm dropout average grades, learning analytics impleme LMS ado that sho which st are falli behind (not logg or low assignm scores) a

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						flag ther counsel follow-u mini ver New Hig warning system Over 36 months, integrat data (lib extracur for a 36 student Use thes insights manage meeting interven

6. AI-Assisted Teaching & Administration *Solve: High teacher workload, one-size-fits-all teaching*	Introduce **AI tools** to augment both teaching and admin tasks. Examples: automated grading systems (for quizzes, essays), AI tutoring chatbots for student Q&A, lesson-planning assistants, and administrative AI (for scheduling or answering routine queries). Several Chinese groups piloted these: e.g., Hailiang's AI auto-generated student feedback comments [30], Tianli's AI tutor answering student questions at scale [36]. For admin, AI chatbots can handle FAQs for IT or enrollment.	**Moderate –** Pilots can be launched in <6 months (using existing AI services). Full impact (e.g., noticeable reduction in workload) in ~1 year as usage grows.	₹ (Low) to ₹₹ (Med), depending on scope. Many AI education tools are subscription-based or open-source models can be used, making entry low-cost. Higher cost if developing custom AI or buying enterprise solutions.	– Sufficient digital data to train/tune AI (e.g., past essays to train a grading model, or a knowledge base for a chatbot). – Reliable tech infrastructure for AI (cloud GPUs for any large model usage, or choose vendor-hosted solutions). – Teacher training and buy-in (they need to trust and know how to use these tools, not feel replaced). – Clear policy on AI usage (e.g., to avoid ethical issues like AI doing students' work).	– **Replacing, not assisting:** A big no-no is positioning AI as replacing teachers. In China, the narrative is AI frees teachers for more creative work [41]. NHG should copy that narrative, not the fear of replacement. – **Neglecting quality control:** AI can make errors. If you implement automated scoring, have oversight or moderation. One Chinese school faced backlash when an AI grading system mis-scored essays due to poor localization – they hadn't adjusted the model to the curriculum. – **Data privacy:** Don't feed sensitive student data into third-party AI without safeguards (especially if using global AI	**NHG:** St small: id 1-2 use where A immedia help. E.g an AI au grading multiple and sho answer question high-enrollme courses saves te time). D "TA chat the stud portal to answer common question ("When i enrollme deadline "How to passwor For acad pilot an tutoring (perhaps English classes: students submit AI sugge improve teacher focuses higher-o feedbac Partner known E AI provi use ope source m

Play & Purpose	Description – "What it is"	Time-to-Value (speed of impact)	Cost Level (₹ = low, ₹₹ = med, ₹₹₹ = high)	Dependencies & Enablers	Risks / Anti-Patterns (What NOT to copy)	NHG Adaptat Notes
						fine-tun Vietnam context. Provide training sessions teachers using AI outputs reviewin graded assignm quickly). metrics: to reduc teacher grading by X%, i student satisfact help rec off-class teachers loop for – maybe AI grade teacher reviews sample ensure consiste
					services – ensure compliance with VN data laws).	

7. Service Desk & IT Support Model *Solve: Users struggling with new tech, and tech issues hampering adoption*	Establish a dedicated **Education IT Helpdesk** (physical or virtual) to support teachers, students, parents in using digital systems. This includes ticketing system, how-to knowledge base, and "IT ambassadors" at each campus. Several Chinese groups noted that continuous tech support and training was key in their rollouts (though not always formally documented, it's an implied best practice). A service desk model treats users as customers – ensuring issues in digital systems are quickly addressed, reducing frustration.	**Fast –** Can be set up in ~3 months (even as a small team or outsourced function). Impact is ongoing: smoother rollouts, higher adoption as people have help.	₹ to ₹₹ (Low if repurposing existing IT staff with minimal tools; moderate if investing in a full ticketing system and staffing).	– Some staffing (a central helpdesk team, plus part-time reps at each school). – Ticketing software or at least a centralized communication channel (could even be integrated in the super-app as "Get Help"). – Knowledge base of common issues (in local language). – Management commitment to responsive support (set SLAs for response time).	– **Under-resourcing:** Don't assume people will just figure new systems out. A common anti-pattern is launching new tech and providing no support – leads to low usage or misuse. Avoid having just one overwhelmed IT guy for all needs. – **No feedback loop:** Failing to track frequent problems means you miss chances to improve systems or training. Implement analytics on tickets to see patterns. – **Treating support as temporary:** Users will always need support (especially with updates); don't disband the helpdesk after initial launch.	**NHG:** Fo "EdTech Support For quic designa existing or tech-s teachers campus champio whom o can ask help. Implem simple helpdes system (shared G Form or WhatsAp hotline t start). Advertis clearly h teachers students help ("H trouble the new Contact. reduce frustrati digital initiative out, upd knowled base wit and sho video tu in Vietna Set goal support requests initial re within 2 hours. A support

Play & Purpose	**Description – "What it is"**	**Time-to-Value** (speed of impact)	**Cost Level** (₹ = low, ₹₹ = med, ₹₹₹ = high)	**Dependencies & Enablers**	**Risks / Anti-Patterns** (What **NOT** to copy)	**NHG Adaptat Notes**
						base wil systems and mor – which crucial t realize t benefits other pl

8. Cloud Infrastructure & Cybersecurity Upgrade *Solve: Slow, unreliable systems and security risks on legacy setup*	Migrate core applications and servers to modern cloud infrastructure (public or hybrid cloud) to ensure scalability and uptime. Many Chinese groups (CEG, New Higher, etc.) moved to cloud for better performance during peak loads [40] [3] . This play also entails strengthening cybersecurity (cloud providers offer better security tools, and groups implemented stricter data policies post-cloud). The result: more reliable access for users and ability to scale new digital services quickly.	**Moderate –** Planning and migration might take 6–12 months (can be phased by application). Users notice improvements as soon as key systems are on faster, more stable cloud servers (e.g., online portals no longer crash under load).	₹₹ (Moderate) initially; can reduce IT costs long-term. Cloud subscription and migration services cost, but savings in hardware refresh and maintenance. Security investments (firewalls, etc.) are necessary – medium cost.	– Choosing a reputable cloud partner (local VN cloud or international with local data center). – IT expertise or a migration consultant to minimize downtime. – Backup and disaster recovery plans (cloud helps here, but needs configuring). – Compliance with any data regulations (ensure student data stored appropriately).	– **Lifting and shifting issues:** Don't just move messy systems to cloud without optimization – could lead to high costs with little performance gain. Assess which systems benefit from cloud (high usage systems) and consider SaaS alternatives for some. – **Security lapse in transition:** Ensure all security measures (access control, encryption) are in place during and after migration. A known anti-pattern is assuming the cloud provider handles all security – you still need proper configurations. – **Over-reliance on one vendor:** Avoid vendor lock-in by adopting cloud in phases and using standard technologies where possible.	**NHG:** Co an IT au Identify systems causing slowdow (maybe student or MIS o old serv Phase 1, migrate public-fa applicat (like admissio website portal) t reliable host – immedia improve in speed availabil quick wi credibili migratio SIS/LMS databas during a semeste to minim disrupti CEG did reduced from 9 t months expert h [3]). Ch cloud pr with loca support possibly Viettel c (for complia Azure/A

Play & Purpose	Description – "What it is"	Time-to-Value (speed of impact)	Cost Level (₹ = low, ₹₹ = med, ₹₹₹ = high)	Dependencies & Enablers	Risks / Anti-Patterns (What NOT to copy)	NHG Adaptat Notes
						regulati allow an effective cloud se tools (DI protecti regular backups Outcom aim for: uptime student- systems during p registrat result da This clou backbor support other di initiative scalabili

9. “One Team” Digital Governance *Solve: Disconnected efforts, inconsistency between campuses*	Create a centralized **Digital Transformation Office or Committee** at the group level that sets strategy, standards and ensures knowledge sharing, while each campus has a local ICT coordinator. Chinese groups like New Higher and CEG have a headquarters IT/teaching affairs team that drives group-wide platforms [42] [7] and aligns campus practices. This governance play ensures that all digital “plays” are coordinated (avoiding, say, each school buying different software) and that success at one campus is replicated at others.	**Fast (setup) –** The committee can be formed immediately. Impact on consistency and efficiency will grow over 12+ months as projects get coordinated. Prevents costly detours from day one.	₹ (Low) direct cost. It’s more about organizational alignment. Might involve dedicating some staff time or hiring a Group CIO/ Digital Lead.	– Top management support (the board/CEO should sponsor this group). – Representatives from key divisions: IT, Academic Affairs, Student Services, etc., and from each education segment (uni rep, K-12 rep). – Clear mandate and decision rights (e.g., approve major software investments, set data standards).	– **Bureaucracy risk:** Don’t let it become just meetings with no action. Empower the team to make decisions and have budget oversight for digital projects. – **No campus input:** If too HQ-driven, campuses may resist. Include influential principals/ teachers in planning (New Higher Ed invited VPs and senior faculty in its digital reform committees to get buy-in [43]). – **Scope creep:** Focus the group on academic and student-facing digital priorities rather than getting lost in purely back-office IT.

Play & Purpose	**Description – "What it is"**	**Time-to-Value** (speed of impact)	**Cost Level** (₹ = low, ₹₹ = med, ₹₹₹ = high)	**Dependencies & Enablers**	**Risks / Anti-Patterns** (What **NOT** to copy)	**NHG Adaptat Notes**
						pilots AI tutoring works, t others h about it through team ra than reinvent wheel. T governa ensures month roadma executed uniform adapts a needed.

10. Process Digitization & Self-Service *Solve: Administrative inefficiency and heavy staff workloads*	Identify common **administrative processes** and digitize them, offering self-service to users. Examples: student enrollment and onboarding forms, leave applications, transcript requests, teacher HR processes, procurement approvals. In Chinese institutions, moving these to online workflows (often via enterprise WeChat or OA systems) significantly reduced paperwork. A “service desk” model for student services is also part of this – e.g., online request system for certificates, dorm maintenance, etc., with tracking. Essentially, build a *digital service desk for students and staff* so that routine tasks don’t require in-	**Moderate –** Each process can be digitized in ~1-3 months if tools are in place. Prioritize quick wins (e.g., online leave form in 1 month). The benefits (time saved) realize immediately for that process. Full culture shift to self-service may take >1 year.	₹ to ₹₹. Many processes can use existing software (Google Forms or an Office 365 workflow) – low cost. For a more integrated approach, investing in an e-office platform is moderate cost.	– Underlying tech: could use an **Office Automation (OA)** system or leverage the super-app (Play #2) to host e-forms. – Process mapping: need to clearly map current steps and optimize them before digitizing. – Staff training to handle digital approvals and to trust the system (no parallel paper). – Possibly e-signature solution for approvals.	– **Digitizing a bad process as-is:** Simplify first, then automate. If a process has unnecessary approval layers, don’t just replicate them online – Chinese universities that succeeded often re-engineered processes during digitization. – **Lack of adoption:** If old paper methods are still allowed “just for some who prefer it”, you might see low adoption of the digital route. After a trial, enforce the digital process as primary. – **Security oversight:** Ensure proper access control – e.g., a student shouldn’t see another’s data due to a mis-configured form.	**NHG:** Pi administ workflow frustrate students For insta the proc request documen (transcri enrollme letters) - it to an o request with trac and set service S (e.g., ful 3 days). Another be teach requests expense reimbur or leave impleme an existi platform Google Workspa simple workflow Aim in 9 to have one high visibility process fully onl group-w symboli “no mor paper fo This not saves tir also sign NHG’s modern

Play & Purpose	**Description – "What it is"**	**Time-to-Value** (speed of impact)	**Cost Level** (₹ = low, ₹₹ = med, ₹₹₹ = high)	**Dependencies & Enablers**	**Risks / Anti-Patterns** (What **NOT** to copy)	**NHG Adaptat Notes**
	person visits or manual paperwork.					Monitor and gath feedbac improve interface 36 mont gradual digitize process potentia adoptin integrat "campus office" s

11. Smart Campus IoT (Internet of Things) *Solve: Campus safety and facility management inefficiencies*	Deploy **smart devices** to manage campus environment: examples – RFID or biometric attendance systems, smart door locks for dorms (as Yuhua did) [19], CCTV with AI for security alerts, energy-saving smart lights/AC, etc. Also educational IoT like smart boards and science labs with sensors (for STEM learning). These technologies create a "smart campus" that is safer, more efficient (e.g., automatic lights off to save power), and enables new learning experiences (VR/AR labs). China's private schools often partnered with tech companies (Huawei, Hikvision) to implement such systems, improving their brand image and operational control.	**Varies –** Safety-related IoT (locks, CCTV) can show immediate impact (incidents prevention) within months. Energy/utility IoT shows cost savings in a year's bills. Instructional tech (smart boards) influences teaching quality longer-term. Suggest phasing: quick security wins in <6 months for dorms, then others.	₹₹₹ (High if doing many devices). IoT hardware (cameras, locks, boards) and infrastructure (network, storage) are significant investments. However, can be phased and often yield ROI (e.g., energy savings, reduced security staffing costs).	– Solid network & electrical infrastructure (IoT needs WiFi coverage, stable power). – Vendor selection and integration: choose devices that integrate with your IT systems (e.g., door lock software sends data to student system). – Maintenance capability: plan for who maintains devices (either in-house or vendor contracts). – Privacy guidelines (especially for cameras in classrooms or dorms – set clear policies).	– **Surveillance overkill:** A known caution – some Chinese schools installed excessive monitoring (e.g., cameras analyzing student facial expressions each minute); this can erode trust. Use IoT for clear benefits (safety, convenience) and be transparent. – **No maintenance plan:** Devices will fail. Don't install hundreds of gadgets without budgeting for maintenance and replacements (one Chinese group installed fancy smart locks but had complaints when many went offline due to no maintenance team in place). – **Standalone systems:** Avoid each IoT system being on its own island (e.g., separate app for	**NHG:** Pr *safety ar saving* Ic For exar install sr card or fingerpr locks in dormito universi ensure c authoriz students log entri (improve security student account This cou trialed ir dorm bu in the fir months. consider energy manage at large campus (sensors turning lights/A empty r For class tech, inv few inte smart b or AR/VR equipme enrich S classes (also serv marketi showcas modern facilities with rep vendors

Play & Purpose	Description – "What it is"	Time-to-Value (speed of impact)	Cost Level (₹ = low, ₹₹ = med, ₹₹₹ = high)	Dependencies & Enablers	Risks / Anti-Patterns (What NOT to copy)	NHG Adaptat Notes
						(maybe telecom security compan who can bundle installat support device d into you systems dorm en logs fee student attenda records privacy consent Measure impact: security incident energy b reduce? those wi justify sc up IoT p Always commun to paren students purpose "these s cameras ensure y children safety a optimize resource
					dorm locks, another for CCTV). Aim to integrate with central ID/logs or use one platform (many vendors provide unified smart campus software).	

12. Digital Curriculum & Content Development *Solve: Lack of engaging digital content aligned with curriculum*	Invest in creating and curating **digital learning content**: e.g., lecture videos, interactive modules, question banks, digital textbooks. Many Chinese private groups collaborated with content providers or developed their own to ensure they had quality resources for online/blended learning. Maple Leaf, for instance, implemented Canvas LMS with rich content for their “World School” curriculum [22]. Some universities built digital textbook libraries and VR course content (New Higher Ed published 77 digital textbooks in two years [8]). The play is to treat content as key infrastructure – ensuring that simply having tech platforms (Plays 2,4,6) is	**Long-term (ongoing) –** Building a library of quality digital content is an iterative process. Some quick wins (upload existing materials to LMS) can happen in months. Developing more interactive content takes >1 year. Impact on learning outcomes will grow as content richness grows (expect noticeable improvements in engagement after ~1 year of consistent use).	₹₹ (Moderate). Initially, leverage open educational resources (low cost). Over time, budget for content creation (could be hiring instructional designers or giving teachers extra pay to create digital lessons). Possibly partner with external content firms – moderate cost per course.	– **LMS or content platform** in place (so content can be delivered). – Teacher training in digital content creation (using tools to make videos, quizzes, etc.). – Possibly, partnerships: e.g., publishers for e-textbooks, EdTech companies for interactive content. – Clear IP policy: if teachers create materials, clarify ownership and incentives.	– **Dumping PDFs online:** Don’t just scan textbooks or upload slide PDFs and consider it “digital content”. Must leverage multimedia and interactivity – otherwise students gain little. – **One-size content:** Avoid content that doesn’t match the local context or student level. (E.g., some Chinese schools bought generic MOOC packages that students didn’t use because it wasn’t exam-aligned). Ensure content aligns with NHG curricula and exam requirements. – **Neglecting updates:** Digital content needs maintenance (curriculum changes, etc.), plan for periodic review.	**NHG:** Concurr with tec rollouts, a “Digita Curricul Initiative by ident high-imp subjects (maybe students struggle exam su In the fi days, encoura teachers upload e material (lecture past pap the LMS immedia resource reposito Then, fo term qu select a teachers external partner create interacti lessons video les for hard quizzes give inst feedbac Possibly open-so content Academ videos) i Vietnam and alig

Play & Purpose	Description – "What it is"	Time-to-Value (speed of impact)	Cost Level (₹ = low, ₹₹ = med, ₹₹₹ = high)	Dependencies & Enablers	Risks / Anti-Patterns (What NOT to copy)	NHG Adaptat Notes
	matched with good content to use on them.					our prog Track us stats on LMS – w resource students accessin to increa engager (more lo practice attempt providin interesti content. months, having a digital re library fo major su grades. content ensures tech pla is actual improvi learning outcome just prov empty s

13. Partnership with EdTech & Ecosystem Leverage *Solve: Limited internal capacity and need for speed*	Leverage external **ecosystem enablers** – partner with tech companies, telcos, and even government programs to accelerate transformation. In China, private educators tapped into national initiatives (e.g., the National Smart Education Platforms for content) and partnered with big tech (Huawei, Alibaba, Tencent) for solutions and often preferential support [32] . For instance, Hailiang partnering with DingTalk [29] gave them a ready-made infrastructure, and Edvantage partnering with SenseTime [16] brought cutting-edge AI expertise. The play here is to **not go it alone**: identify key strategic partners in	**Fast –** A good partnership can cut rollout time dramatically (DingTalk provided Hailiang an immediate platform for 21k schools nationally [32]). Once an agreement is signed, you may tap into ready tech within weeks or months.	₹ (Low) if it's more about adoption of partner's platform (often low-cost or free for edu). ₹₹ if co-developing something (sharing some development cost). Often partners might offer discounts or CSR programs for education.	– Mapping needs to potential partners: Cloud providers (for infrastructure, e.g., AWS, Azure, FPT), Telecoms (for connectivity in campuses, possibly free fiber or 5G pilots), EdTech startups (for AI or content). – A clear value proposition for partner: e.g., they get reference case, data (with consent), or market access. – Legal review of agreements (data sharing, exit clauses). – Aligning partner solution with our needs (avoid force-fitting something that doesn't quite solve our problem).	– **Solely vendor-driven decisions:** Don't let a vendor dictate your strategy (e.g., don't adopt a system just because a big company offers it cheap, if it doesn't fit your pedagogy). Use partnerships to fill gaps, not to derail needs. – **Over-reliance:** Having key systems entirely dependent on one external partner can be risky long-term (lock-in). Mitigate by maintaining ownership of data and having exit options. – **Ignoring local context:** Some Chinese partnerships were backed by strong government push; in Vietnam ensure partnership outcomes align with local regulations and culture (e.g., if partnering for AI, ensure language	**NHG:** Proactiv pursue a strategic partners the next months. example **Cloud p** – approa top clou provider AWS, Mi or local cloud) fo educatio digital transfor deal (the often ha educatio program This cou provide technica advisors training invested for voca digital u [44] – si models exist). **Te partner** ensure a campus high-spe internet telecom partners (maybe or Viette provides upgrade exchang showcas smart ca

Play & Purpose	Description – "What it is"	Time-to-Value (speed of impact)	Cost Level (₹ = low, ₹₹ = med, ₹₹₹ = high)	Dependencies & Enablers	Risks / Anti-Patterns (What NOT to copy)	NHG Adaptat Notes
	Vietnam or internationally (for cloud, for AI, for digital content, etc.) and form collaborations (through MOUs, pilot programs, etc.).				support in Vietnamese).	use of th 5G). **Cor AI partn** link with EdTech f (could b Vietnam or regio pilot AI t or AR/VR content classroo they get testbed, cutting-e tech and support partners goal-foc (e.g., "im STEM lea via AR co as the th with a p providin equipme training) Maintain partners portfolio review periodic value. Th approac NHG spe and inno "on loan where b in-house be too s costly.

C) NHG 36-Month Digital Transformation Roadmap

Phase 1: Foundation & Quick Wins (Month 0–6) – Establish governance, secure early successes, and build the basic infrastructure.
Phase 2: Core Systems Rollout (Month 7–18) – Implement group-wide platforms for learning and administration; expand successful pilots.
Phase 3: Optimization & Innovation (Month 19–36) – Refine based on data, introduce advanced technologies (AI, analytics) at scale, and ensure sustainability.

Phase 1: >“Digital Foundation & Quick Wins”	Months 0–6	– **Set up DT Governance:** Form NHG Digital Transformation Taskforce (incl. Group CIO, school IT heads, academic reps) [43] . Kick-off with clear charter and 36-month plan approval. – **ICT Infrastructure Boost:** Upgrade campus internet (partner with telco for fiber/Wi-Fi improvements); migrate at least one critical system to cloud (e.g., admissions site to cloud host) for immediate reliability gain [3] . – **Unified ID Pilot:** Implement unified NHG Student/Staff ID and smartcards at 1 university campus (use for library, entry, canteen) [20] . – **Quick-win Process Digitization:** Launch online admissions application for next intake (replace paper	• **DT Taskforce active** – governance structure, monthly meeting minutes. • **Network upgrades** completed (e.g., X Mbps Wi-Fi in all classrooms, verified). • **Cloud migration report** – one system moved, performance metrics (uptime 99%). • **Unified ID pilot** – 100% of Campus A students issued smart ID cards; systems integrated (card used in 3+ use cases). • **NHG OneApp v1** live (with at least 50% of students registered). • **Online admissions portal** for upcoming intake (tested and launched). • **Comms & training** – 5+ training sessions held, helpdesk	– **App adoption rate**: >60% of target users download/log in NHG OneApp in Phase 1. – **Internet bandwidth**: e.g., 100% of campuses with minimum 100 Mbps connectivity. – **ID card usage**: Pilot campus sees >80% transactions (cafeteria, lib) via new ID (cashless). – **Process time reduction**: Online admission cuts application processing time from 2 weeks to 1 week (target). – **User satisfaction**: >70% staff/ students rate initial changes “useful” in a quick survey.	**Owners:** Group CIO (Taskforce lead) coordinates all. Campus IT heads execute infra and ID pilot. Admissions office owns online portal. Comms team and school principals own training/ awareness. **Operating model:** Central IT provides templates and support (e.g., OneApp setup, form creation), campus teams implement locally. Weekly checkpoint meetings for Phase 1 initiatives.	– *Risk:* **Res to change** used to old *Mitigation:* leadership messaging involve “ch champions each schoo highlight q win succes stories and provide inc (e.g., awar departmen go paperle fastest).<b *Risk:* **Tech in new sys** (e.g., app b card syste issues). *Mi* have vend support or standby, s scale pilot full launch the helpde ready. Use to iron out on a small scale. **Adoption** (users ignc tools). *Miti* make initia actually so pain point online adm makes life not harder Provide qu reference and mand usage whe appropriat “from now

Phase	Timeline	**Initiatives** (What NHG does)	**Key Deliverables**	**Target KPIs**	**Owners / Operating Model**	**Major Risk Mitigation**
		forms) and an e-request form for academic documents at all universities (simple Google Form or similar as interim). – **Super-App Launch (MVP):** Deploy “NHG OneApp” in basic form – news, announcements, and a helpdesk channel – to all students/parents (seed adoption). – **Training & Change Management:** Conduct digital literacy workshops for staff (esp. on new systems like OneApp, e-forms). Announce and celebrate each quick win to build momentum.	contact published group-wide.			internal m via OneAp email”).

Phase 2: >“Core Systems Rollout & Integration”	Months 7–18	– **Group-wide SIS/LMS Platform:** Implement a unified Student Information System and/or upgrade LMS across NHG (covering enrollment, grades, attendance). Migrate each university’s student data into the new system [1] . For K-12, deploy an integrated school management system (could be same platform adapted or a K-12 specific module). – **Academic Ops Online:** Launch online course registration and grade management on the new system for next academic cycle at universities (no more paper add/drop) [5] . Implement digital gradebooks for K-12 teachers. – **Expand Unified ID & One-Card:** Roll out to all NHG campuses	• **New SIS/LMS live** at all universities (legacy systems retired or integrated). K-12 management system live in all schools (for attendance, grading). • **Online registration & grading** operational for first university term (all students register for courses online, teachers input grades digitally). • **ID cards/e-pay** operational at 100% campuses – card or app used for entry and payments (with back-end integration to finance). • **OneApp v2** with academic and payment features live; integrated with SIS (students can see grades, schedules). • **Dashboards**: at least 3 interactive dashboards (e.g.,	– **Core system usage**: 100% of students registered courses via system (no paper) in rollout semester. – **Transaction stats**: e.g., 90% of campus payments now cashless (monitor via system logs). [5] – **App engagement**: Monthly active users of OneApp >80% of student body and >50% of parents (for K-12) by end of Phase 2. – **Data-driven decisions**: Each school holds at least 1 review meeting using dashboard data (metric: adoption of data in meetings). – **Staff efficiency**: Measure time for tasks (e.g., grade submission time reduced by 50%; finance reconciliation time down by 30%).	**Owners:** Group CIO and Academic Affairs lead the SIS/LMS project (with vendor help if any). Campus registrars and IT coordinators execute rollout locally. Group CFO for e-pay integration. OneApp team (part of IT + Communications) to add features. Data analyst (new hire or consultant) builds warehouse/dashboards under CIO. **Operating model:** Central project management for SIS/LMS to ensure consistency. Local “digital champions” in each faculty to support colleagues. Bi-weekly progress calls during rollout. The DT Taskforce monitors adoption metrics and troubleshooting.	– *Risk:* **Syst implemen delays or** *Mitigation:* proven sof and experi implement partners. S with a pilo campus if before gro go-live. Ha contingen (e.g., keep system rea as backup first term). success or suggests c planning a vendor su key [3] .<b *Risk:* **Data migration** *Mitigation:* Rigorously and test da migration parallel tes involve reg to verify). C user accep testing wit scenarios full switch. *Risk:* **User pushback complianc** Faculty mi enter grad time in ne system, et *Mitigation:* policies (e. grades *mu* system by to be proc

		(iterate from Phase 1 pilot). Integrate the ID with new SIS/ LMS and payment systems. Introduce cashless payments at cafeterias and bookstores group-wide (using e-wallet or bank integration). – **NHG OneApp v2:** Enrich the portal with new modules: personalized class schedules, exam results, fee payment link, and parent-teacher communication feed. Integrate the helpdesk/ ticket system for IT and admin requests. Ensure SSO with the unified ID (one login). – **Data Warehouse & Dashboard:** Set up a basic data warehouse consolidating SIS, LMS data. Deliver first management dashboards – e.g., enrollment trends, dropout flags, etc.,	enrollment stats, academic performance summary, finance collections) accessible to management via secure portal. [5] [8] • **Training completion**: >90% of faculty and relevant staff trained on new systems (via logs or sign-offs).		Provide on support du critical per (registratio week). Sho benefits: e instant cla easier gra workflows hearts.<br **Cybersecu threats** as data goes *Mitigation:* Strengthen security no ensure acc controls, b and train s data prote Possibly b security au after Phas rollout.

Phase	Timeline	**Initiatives** (What NHG does)	**Key Deliverables**	**Target KPIs**	**Owners / Operating Model**	**Major Risk Mitigation**
		accessible to leadership (informed by KPI needs set in Phase 1). [8] – **Staff & Student Training Blitz:** Before new systems go live, conduct intensive training: how to do online registration, how to use OneApp features, etc. Leverage short video tutorials and in-person demos.				

Phase 3: >“Enhancement & Innovation”	Months 19–36	– **AI & Analytics Expansion:** Introduce AI tools group-wide based on Phase 2 data platform maturity: e.g., an AI-driven early warning system for at-risk students (dashboard highlights students with low attendance/ grades for counselor follow-up) [8] ; pilot an AI tutoring chatbot for common courses (FAQs, tutoring) for universities, and an AI-assisted English or math practice app for K-12 (possibly in partnership with an EdTech firm). – **Advanced Smart Campus Projects:** Scale IoT implementations: smart dorm locks to all university dorms (if pilot was earlier), implement smart classrooms (interactive flat panels, lecture capture) in majority of classrooms, and	• **AI early warning system** live – e.g., counselors receive auto-alerts and AI-generated insights on students in need each semester (with an intervention workflow). • **AI learning pilot** – at least 1 AI tutor/ chatbot integrated into LMS or OneApp for a pilot subject, and an evaluation report of its impact (e.g., usage stats, feedback). Possibly expanded if successful (like Tianli’s scaled model but in NHG context). [36] • **Smart infrastructure at scale** – All target dorms have IoT locks, X% of classrooms have smart boards or lecture capture, and an integrated safety monitoring	– **Student outcomes:** decrease in dropout or failure rates by X% (due to early interventions) – measure over Phase 3. – **Staff productivity:** e.g., staff:student ratio can be optimized because of efficiency (target an improvement such as 1 admin can handle 20% more students). Or processing times for key workflows drop by >50%. – **User satisfaction:** >85% of students and parents express satisfaction with digital services in annual survey (improvement from Phase 1 baseline). – **Digital engagement:** e.g., % of courses using LMS extensively (target 100% courses have online materials and usage), average daily	**Owners:** Group CIO and digital office continues to drive, but more integration into normal departments: Academic Affairs takes lead on AI academic tools (with IT support), Student Services on early warning (with counselors). Facilities/ operations managers handle IoT rollout (with IT for integration). HR/ Finance heads own e-office implementation for their processes. The content/academy initiative owned by an academic dean or NHG’s own learning center. **Operating model:** Phase 3 projects managed by respective departments with digital team as enabler. The Digital Taskforce monitors overall benefits realization and ensures all pieces remain integrated	– *Risk:* **Fan underutili** e.g., smart not used b teachers, A ignored by students. *Mitigation:* in change managem advanced peer ment (have enth teachers d smart boa pedagogy others), m tutor usag of study recommen Evaluate p results hon and don’t s what does impact.<br **Privacy an ethical iss** With AI an extensive risks arou security or accusation monitoring (especially recognitio introduced *Mitigation:* Develop a data ethics For any controvers (cameras, decisions), consent, p opt-outs o alternative ensure

	possibly a facial-recognition entry system at gates for security (only if acceptable – ensure opt-in). Use these systems to collect operational data (space utilization, etc.) for optimization. – **Process Optimization & Paperless Initiative:** Having digitized core processes in Phase 2, now optimize: e.g., use workflow automation in HR, finance (maybe implement an e-office system for leave, payroll). Aim for "paperless campus" in admin: 80%+ of internal forms and approvals fully online with e-signatures by end of Phase 3. Provide training in new workflows and monitor for bottlenecks to refine processes. – **Continuous Content Development:** Establish a	system operational (with clear privacy policies). • **E-office platform** – HR, finance, and academic admin processes (transcripts, procurement requests, etc.) are processed via a workflow system (no paper forms). Audit shows >80% reduction in paper use group-wide. • **NHG Online Academy** launched – offering at least 5 online courses (cross-campus or enrichment) with content library available to all NHG students. • **Final review & handover** – Digital transformation review report produced; permanent digital governance and support teams institutionalized	OneApp use per student (target increase). – **Cost savings:** Identify cost impacts, e.g., printing costs down by 90%, IT maintenance cost stabilized or reduced despite growth, etc. – **Innovation metric:** NHG recognized externally (e.g., wins a national award or positive media mention as a digital-transformation leader in education, similar to Chinese counterparts gaining recognition).	(especially AI and data usage aligning with policies). Frequent user feedback loops (surveys, focus groups each semester) to guide tweaks.	transparer (explain ho early warn works to s so they tru Keep hum the loop fo decisions (suggests, decide on interventio >– *Risk:* **Sustainab** Project enthusiasm wane, or s could fall o update/ maintenan initial phas (common i long-term *Mitigation:* before pro end, secur ongoing b for digital operations Transition Taskforce t standing " Innovation Committee continues meeting. Document knowledge manuals, i experts ide Possibly es a small "Di R&D" fund exploring tech post-

		content studio or incentivize teachers to continuously create digital learning resources. Possibly launch NHG Online Academy for cross-campus electives or remedial courses (leveraging the digital platform and content). Use data on course demand to drive content creation (e.g., high failure rate subjects get extra digital tutorials). – **Benchmark & Quality Assurance:** By month ~30, evaluate the transformation progress versus goals. Use student/parent satisfaction surveys and perhaps an external digital maturity assessment. Address any gaps in user experience quality. Adjust the roadmap if needed (e.g., if some tech isn't working as	(moving from project mode to operational mode).

Phase	Timeline	**Initiatives** (What NHG does)	**Key Deliverables**	**Target KPIs**	**Owners / Operating Model**	**Major Risk Mitigation**
		planned, iterate or replace). Plan for sustainability: budget for ongoing system maintenance, set up a permanent Digital Innovation team post-project.				

D) 90-Day Quick Wins (Top 10)

To build momentum early, NHG should execute a set of **quick wins in the first 3 months**. These are low-cost, high-impact actions (some initiated in Phase 1 above) that demonstrate progress and solve immediate pain points. Each quick win is listed with expected impact and prerequisites to implement:

1. **Establish NHG Digital Taskforce and Vision Workshop** – *Within 2 weeks*, form the core digital steering committee (as noted in Phase 1) and hold a one-day workshop with campus leaders to paint the vision (what "top-tier digital experience" means for NHG). **Impact:** Aligns everyone, creates buy-in and clear messaging. **Prerequisites:** CEO/Board endorsement; calendar invite to all key stakeholders; an agenda focusing on goals and showcasing a case study (could even invite a guest speaker from a transformed Chinese school for inspiration).

2. **High-Speed Campus Wi-Fi in Pilot Area** – Partner with an ISP to upgrade Wi-Fi or set up a new hotspot in a high-traffic student area (library or cafeteria) at one university, *within 1 month*. **Impact:** Students immediately notice faster connectivity – enables them to use e-learning resources more; visible sign of change. **Prerequisites:** Budget for new routers or an ISP agreement (often ISPs might do a quick pilot for publicity); IT team to install and test; communicate network name/password to students.

3. **Launch Online Admissions/Application Form** – Convert the paper admissions or inquiry form into a simple online form (e.g., Google Forms or a page on NHG site) for the upcoming enrollment cycle. Do this for either university enrollment inquiries or K-12 admissions *within 1 month*. **Impact:** Immediately streamlines data collection, reduces manual data entry; impresses applicants with a modern process. **Prerequisites:** Web team to create the form; define the fields needed; a backend spreadsheet or database to collect responses; test thoroughly; announce on website and social media that NHG accepts online applications (marketing win).

4. **Digital Communication Shift ("LINE to OneApp")** – If currently using ad-hoc Zalo/FB groups for parent or staff communication, move one pilot school's communications to an official channel. For example, set up an **official Zalo group or Microsoft Teams channel** for all teachers and parents of a class (if OneApp isn't ready yet). Do this *within 1–2 months* at a willing K-12 school. **Impact:**

Improves information consistency and sets stage for the super-app; parents get used to a single info source. **Prerequisites:** School principal buy-in; collect all parent contacts; assign an admin to post all announcements on the new channel; provide brief training to parents on joining. (When NHG OneApp goes live later, these users can be migrated, but this establishes the habit of digital comms).

5. **Smart ID Card Trial** – Implement student/staff ID cards at NHG's main university gate or library *within 2 months*. Even if full integration isn't done, start by using ID cards for building entry or library checkout. **Impact:** Enhances security and convenience (no manual check of IDs); gives a tangible tech feel on campus. **Prerequisites:** Purchase ID card printers and readers (for a pilot scale ~ a few hundred cards); configure a simple database of authorized IDs; IT staff to manage. (Option: if physical cards not feasible quick, use a QR code in an email or app as interim "digital ID").

6. **Fee Payment Portal (Pilot Department)** – Pick one revenue stream (e.g., semester English program fee or uniform fee in a K-12) and enable online payment for it *in 2 months*. Use a payment gateway link on NHG website or integrate with a popular mobile wallet. **Impact:** Tests the waters of cashless payment, reduces hassle for that fee collection, and provides a success story (e.g., "90% of parents paid the uniform fee online within 1 week"). **Prerequisites:** Finance department to pick payment method (bank transfer info, or setup Momo/ZaloPay QR code); web person to create payment instructions page; communication to target payers with clear steps. Monitor uptake and follow up with those who don't use it to understand why.

7. **IT Helpdesk Hotline & FAQ** – Set up a simple helpdesk contact (could be as basic as a dedicated phone line or email, or a Facebook Messenger chatbot) *within 1 month*. Also publish a one-page "FAQ for Students/Parents" covering common IT questions (password resets, where to find online resources, etc.). **Impact:** Even before big systems roll out, users feel supported. It reduces frustration when encountering any existing tech issues. **Prerequisites:** Assign an IT staff member or two on rotation to handle queries; get a dedicated SIM/number or email; compile FAQ content from known issues. Advertise this helpdesk in all schools (e.g., posters or orientation). This also prepares the structure for more support needed in later phases.

8. **Paperless Meeting Initiative** – As a quick internal win, make one frequent meeting fully digital in documentation *immediately*. For example, academic department meetings use OneDrive/Google Docs instead of printed agendas; or principals' weekly report goes via email or shared drive instead of printed memo. **Impact:** Saves time and paper cost right away; sets an example from leadership on adopting digital tools. **Prerequisites:** Ensure all participants have device access (if not, provide a few tablets or encourage laptop use); train the meeting organizer to use digital note-sharing. Announce proudly "this meeting is paperless – find your docs in your email or on the shared drive." Track how much printing was avoided to quantify impact.

9. **Teacher Digital Champion Announcement** – Identify a group of say 5 enthusiastic teachers (or staff) across the group who are good with tech, and label them "NHG Digital Champions" in month 2. Give them a small recognition (certificate, maybe a stipend or new tablet) and task them to help peers in their schools adopt new tools. **Impact:** Utilizes peer influence to drive change, and provides informal support channels. Also signals that NHG is empowering its staff in this journey. **Prerequisites:** Principals to nominate tech-savvy teachers; a quick orientation for these champions on expectations; perhaps set up a chat group for them to share tips and feedback with the central team. Recognize them in an NHG newsletter to boost morale.

10. **Success Story PR** – By end of 90 days, document one success (even if small) and share it widely. E.g., "Campus X goes digital for course registration – 95% students registered from home in 3 days!" with a short article and student quotes. **Impact:** Builds positive momentum and publicizes NHG's progress to both internal and external audiences (can help marketing). **Prerequisites:** Collect data and feedback on the chosen success; have Marketing/PR draft a story; include a citation or comparison (if any, e.g., "this process used to take 2 weeks of queues" – showing improvement). Publish on NHG website, social media, possibly local news outlets. This quick win celebrates the team's effort and sets the tone that NHG is rapidly moving forward (like how Chinese education groups tout their digital achievements to stakeholders).

Each of these quick wins is **actionable with minimal dependencies**, yet together they signal a new era for NHG. They also provide learning experiences that inform the larger 36-month projects. By executing these in the first 90 days, NHG will create confidence among stakeholders, making them more receptive to the broader transformation roadmap ahead.

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