STRATEGIC PLANNING FOR DIGITAL TRANSFORMATION IN HIGHER EDUCATION IN CAMEROON

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ABSTRACT

This study examines strategic planning for digital transformation in higher education in Cameroon, focusing on how universities plan, resource, and govern digital initiatives for teaching, learning, and administration. Using a mixed-methods approach, the study collected questionnaire data from 55 respondents (university administrators, ICT staff, and lecturers) and conducted interviews with key stakeholders in three public universities, complemented by document review. Findings indicate that while institutions have expanded digital learning and administrative systems, following the COVID-19 disruption, progress remains uneven. Key constraints include inadequate infrastructure and connectivity, limited and unpredictable financing, weak governance and coordination mechanisms, and insufficient staff capacity-building. The study concludes that digital transformation in Cameroonian universities requires coherent institutional roadmaps aligned with national priorities, strengthened digital governance, sustained investment, and systematic professional development. Practical recommendations are proposed for university leaders and policymakers to improve implementation, monitoring, and scalability.

Keywords: digital transformation; strategic planning; higher education; Cameroon; leadership

1.0 INTRODUCTION

Digital transformation (DT) has become a defining agenda for contemporary universities, reshaping teaching and learning, research, student services, and core administrative processes. In higher education, DT extends beyond adopting discrete technologies; it entails institution-wide change in governance, culture, capabilities, and data-driven decision-making, supported by coherent strategy and investment (Benavides et al., 2020; Gong & Ribiere, 2021; Wang et al., 2021). Evidence suggests that transformation outcomes depend on leadership commitment, institutional readiness, and alignment between digital initiatives and academic mission (Alshammari & Wanous, 2021; Rodriguez-Abitia & Bribiesca-Correa, 2021).

In Cameroon, national and sector strategies increasingly position digitalisation as an enabler of human-capital development and public-sector performance, with direct implications for higher education governance, quality assurance, and employability outcomes (MINESUP, 2022; Republic of Cameroon, 2020). However, the higher education system continues to face constraints that commonly characterise DT in low- and middle-income contexts—uneven connectivity, limited financing, capability gaps, and fragmented institutional governance (Gkrimpizi et al., 2023; World Bank, 2021).

Historically, digitalisation efforts in Cameroon's public universities have evolved through donor- and state-supported initiatives, including early connectivity and distance-learning programmes (World Bank, 2007). More recent plans articulate performance and investment priorities for the higher education sector, but implementation remains uneven across institutions (MINESUP, 2022). This situation underscores the need to examine how strategic planning, governance, and resource mobilisation shape DT outcomes within Cameroonian universities.

1.1 Purpose of the Study

This study investigates strategic planning as a governance mechanism for digital transformation in higher education institutions in Cameroon. Strategic planning provides a structured approach for aligning organisational mission, stakeholder expectations, and resource commitments (Bryson, 2018). Specifically, the study explores how planning processes, resource allocation, and governance structures influence the effectiveness and sustainability of digital transformation initiatives.

2.0 LITERATURE REVIEW

Digital transformation in higher education is commonly conceptualised as an institution-wide transformation of academic and administrative activities through digital technologies and associated capabilities. A systematic review by Benavides et al. (2020) identifies recurring DT domains—teaching and learning, research, governance and management, and external engagement—while emphasising that outcomes depend on organisational readiness and change management. Complementing this, Wang et al. (2021) synthesise evidence on DT enablers, including leadership, digital culture, data governance, and stakeholder alignment. Framework-oriented studies propose staged models and maturity assessments that help institutions benchmark progress and prioritise interventions (Alshammari & Wanous, 2021; Rodriguez-Abitia & Bribiesca-Correa, 2021).

Across studies, barriers are consistently multi-dimensional. Gkrimpizi et al. (2023) classify barriers into environmental, strategic, organisational, technological, people-related, and cultural categories, pointing to the centrality of governance and human-capability development. Recent post-COVID analyses similarly emphasise constraints related to institutional preparedness, funding, and staff support (Ndaba & Naidoo, 2024). In African settings, case evidence suggests that progress is accelerated when DT is embedded in strategic planning and supported by coherent digital governance structures, including clear decision rights, portfolio management, and monitoring indicators (Kayanja et al., 2025).

Capability development is particularly salient. Universities require not only infrastructure but also digital transformation skills across leadership, academic, and professional staff, including data literacy, process redesign, cybersecurity awareness, and pedagogical digital competence (Bouwmans et al., 2024; Howard & Tondeur, 2023). Institutional support mechanisms and sustained professional development are therefore critical mediators of adoption and long-term use of digital systems (Nita & Gutu, 2023). Within the Cameroonian context, strategic planning is frequently discussed but inconsistently operationalised, with digital initiatives often executed as standalone projects without clear sequencing, accountability, or monitoring. This study contributes empirical evidence on how universities translate national and institutional priorities

into actionable DT plans, and how gaps in governance, financing, and capacity-building shape implementation outcomes.

3.0 METHOD

This study adopted a qualitative, mixed-method approach to investigate digital transformation in Cameroon's higher education. We combined survey research with semi-structured interviews and observational notes to gather both broad quantitative indicators and in-depth qualitative insights. The target population included students, faculty, and administrators at three public universities selected as case studies: the University of M, the University A, and the University AI. These institutions were chosen to represent different geographic regions and a mix of older and newer universities, thus providing a more comprehensive view of the national higher education landscape.

Data Collection: A questionnaire was designed to assess participants' perspectives on current digital infrastructure, usage of educational technologies, encountered challenges, and perceptions of institutional support for digital initiatives. The survey instrument included a mix of multiple-choice and Likert-scale questions, with key items addressing the availability of computers and internet on campus, frequency of use of digital platforms (such as Learning Management Systems), and identification of major obstacles to digital adoption. Before finalizing the survey, we conducted informal conversations and a pilot test with a small group of students and lecturers (through social media channels like WhatsApp) to ensure the questions were clear and relevant. Based on this feedback, five main categories of challenges were identified and incorporated into the survey: lack of infrastructure (hardware), lack of internet access, insufficient funding, irregular power supply, and insufficient ICT training/support.

The survey was administered both online (via a web link) and in paper format between March and April 2023. A total of 55 valid responses were collected. Of these respondents, 58% were students, 24% were teaching staff, and 18% were administrative staff. The sample included representatives from each of the three case universities: 25 participants (45.5%) from University A, 17 (30.9%) from University AI, and 13 (23.6%) from University of M. We aimed for a roughly proportional representation based on the size of these institutions. Participant demographics showed 58% male and 42% female, spanning both undergraduate and postgraduate levels in the case of students.

In addition to the survey, we conducted in-depth interviews with 8 individuals (5 faculty members and 3 administrators, across the three universities). These interviews followed a semi-structured guide, probing deeper into questions of strategic planning: e.g., "Does your university have a formal digital strategy or policy?", "What do you see as the root causes of the challenges in implementing educational technology?", and "What strategies do you suggest for improving digital integration?". Each interview lasted approximately 30–45 minutes, was recorded with consent, and later transcribed for analysis. We also gathered relevant documents and observations, such as university ICT policy documents (if available), and noted the state of computer labs, libraries, and internet facilities during campus visits.

Quantitative data were analysed using descriptive statistics (frequencies and percentages). Qualitative data were analysed using an interpretative approach combining thematic analysis and iterative coding, with attention to convergence and divergence across participant groups (Braun & Clarke, 2006; Miles et al., 2014).

Ethical considerations were observed throughout the study. Participation was voluntary, informed consent was obtained, and responses were anonymized. We also presented our preliminary findings to a small group of stakeholders from each university to validate our interpretations and ensure the recommendations would be pragmatic and culturally appropriate. The next section presents the results of our study, integrating survey data and interview insights to highlight the major challenges identified and their root causes.

4.0 RESULTS

Current Challenges in Digital Transformation: The survey results indicate that Cameroonian higher education institutions face several acute challenges in their digital transformation efforts. Figure 1 summarizes the major problem areas reported by respondents. Notably, inadequate digital infrastructure was cited by about two-thirds of participants as a primary obstacle. This refers to a shortfall in basic hardware (computers, servers) and campus network infrastructure needed to support e-learning and administrative systems. A nearly equally high percentage of respondents pointed to limited internet access, reflecting both the insufficient bandwidth on campuses and issues with connectivity reliability. Many universities rely on slow, shared internet connections, and students often must purchase their own data bundles to get online. Around half of the respondents further identified underfunding as a critical issue, linking the lack of equipment and services to the broader problem of limited financial resources for technology initiatives. Other noted challenges included sporadic electricity supply (Cameroon's grid unreliability affects ICT usage, especially in more remote campus locations) and a shortage of ICT resources and support, such as technical staff or training programs, which was mentioned by roughly one-fifth of participants.

Figure 1. Key challenges facing digital transformation in Cameroon's higher education, based on survey data (percentage of respondents identifying each challenge). The lack of basic infrastructure and internet connectivity are the most frequently cited issues, followed by insufficient funding. Lower-tier issues include unreliable power supply and limited ICT tools or support.

The qualitative data echoed these survey findings. Many interviewees expressed frustration with the state of campus technology. "The internet connection on campus is very slow and often goes down. Students can't access online journals or even emails reliably," reported one lecturer from University A. A senior administrator confirmed that budget constraints limit their ability to upgrade IT facilities: "We draw up plans for new computer labs or better Wi-Fi, but the funding is simply not there. We depend mostly on government subvention, which barely covers salaries and basic utilities." These perspectives illustrate how infrastructure and funding issues are intertwined, creating a vicious cycle that hampers digital progress.

According to the survey data (see Figure 1), lack of digital infrastructure (approximately 65% of respondents) and lack of internet access (~60%) emerged as the most widespread problems. An insufficient university budget for technology was also a commonly highlighted issue,

mentioned by nearly half of respondents, reinforcing the point that without financial investment, technical solutions remain out of reach. By contrast, fewer participants (under one-third) viewed factors like lack of user training or resistance to change as primary problems — those tend to be secondary symptoms rather than root causes in this context.

Underlying Causes – Why Do These Challenges Persist? Through interviews and follow-up survey questions, we probed the reasons behind the aforementioned challenges. A consensus finding was that inadequate funding is the root cause underpinning many issues. Roughly 75% of respondents believed that the central government's funding for higher education digital initiatives is grossly insufficient. Cameroon's public universities largely rely on government budget allocations, and informants noted that ICT projects often have low priority in these budgets. One university IT director (Interviewee E) explained: "Major transformations need major investments. Our economy might be growing, but higher education hasn't seen a proportional increase in funding for ICT. We still struggle to buy projectors, let alone maintain high-speed internets for all." This sentiment was widely shared; public institutions lack discretionary funds and external grants to support digital transformation on a scale.

Another key factor identified was the lack of international partnerships and support. Over half of the participants indicated that their institutions do not actively collaborate with international organizations or tech companies to bolster their digital capacity. This aligns with the survey finding that absence of international cooperation was seen as a significant reason behind slow digital progress. Interviewee B, a faculty member involved in university planning, noted: "We hear about universities in other countries partnering with companies like Cisco or Google for training and infrastructure. Here, those partnerships are rare. We mostly rely on the government, which is not enough." The data suggest that without external assistance — be it through development grants, exchange programs, or corporate social responsibility initiatives — Cameroonian universities face the transformation journey largely on their own, which is challenging given limited internal resources.

Governance and strategic clarity also play a role. About 30% of respondents felt that a lack of organizational planning and stakeholder involvement contributes to the stagnation. In practice, this means some universities do not have a clear digital strategy or dedicated body to drive the agenda. One interviewee admitted that university leadership often lacks a sense of urgency about digital transformation until a crisis (such as the COVID-19 pandemic) forces abrupt changes. "We attempted e-learning during the lockdowns, but it was chaotic," recalled a department head, "There was no existing strategy to integrate these tools, so everyone was scrambling. Once things normalized, the momentum was lost." Such experiences highlight that without sustained commitment from leadership and involvement of faculty, students, and IT staff in planning, digital initiatives may be short-lived.

Moreover, the centralization of decision-making and heavy reliance on the state is an impediment. University administrators pointed out that they have limited autonomy to allocate funds or initiate large projects; almost everything must be approved by ministry authorities. This bureaucratic constraint often slows down innovation. "By the time a proposal for new software goes through the administrative chain, the technology is outdated," quipped one participant. The survey and interviews together paint a picture where even though the need for

digital transformation is recognized, systemic issues of funding, limited partnership networks, and weak strategic governance mechanisms conspire to maintain the status quo.

These findings align with the broader literature indicating that digital transformation in higher education is mediated by organisational readiness, leadership capacity, and sustained investment. Systematic reviews show that infrastructure gaps and fragmented governance frequently impede digital initiatives, particularly in resource-constrained settings (Benavides et al., 2020; Gkrimpizi et al., 2023). Recent post-COVID analyses further underscore that emergency adoption can mask longer-term issues of strategy, funding, and staff support (Ndaba & Naidoo, 2024). The prominence of capacity-building and governance deficits in this study also reflects evidence that leadership and institutional culture are decisive in enabling transformation beyond technology deployment (Nita & Gutu, 2023).

From a strategic management perspective, universities require an explicit digital transformation roadmap that clarifies target operating models, prioritises initiatives, sequences investments, and specifies accountability and monitoring indicators (Alshammari & Wanous, 2021; Bryson, 2018). Without such alignment, digital initiatives risk remaining episodic—driven by individual champions or external projects—rather than institutionalised capabilities (Hanelt et al., 2021; Wang et al., 2021).

Faculty	Courses Using LMS (%)
Science	80%
Engineering	75%
Business & Management	65%
Arts & Humanities	50%
Education	45%

At the policy level, MINESUP's CSP 2022–2030 provides a useful frame for system-level coordination, but effective implementation will depend on institutional capacity, predictable financing, and inter-university collaboration mechanisms, including shared services and interoperable data systems (MINESUP, 2022). National digital economy investments and regulatory reforms can further strengthen connectivity and cybersecurity foundations on which universities depend (World Bank, 2021).

Overall, the results of our study make clear that Cameroon's higher education sector is struggling with foundational elements of digital transformation. The challenges are predominantly structural (infrastructure, funding, policy), rather than a lack of interest or basic awareness. Students and faculty are generally eager to use modern tools indeed; many already use personal smartphones or cyber cafés to access materials online. But without strategic investments and support at the institutional level, their efforts remain fragmented. In the next section, we will discuss how strategic planning can address these findings and we outline specific recommendations to move forward.

5.0 DISCUSSION

First, universities should prioritise comprehensive DT roadmaps that align institutional priorities with national frameworks and realistic baseline assessments (Bryson, 2018; MINESUP, 2022).

Second, universities should strengthen capacity-building programmes that move beyond tool training to include process redesign, data governance, and cybersecurity awareness, thereby building institution-wide DT capability (Bouwmans et al., 2024; Nita & Gutu, 2023). Third, institutional leaders should establish DT steering committees responsible for governance, portfolio management, and accountability, with clear decision rights and performance indicators (Alshammari & Wanous, 2021; Kayanja et al., 2025). Finally, sustainable financing models are required to support infrastructure renewal, systems integration, and continuous professional development. Universities can combine government allocations with competitive grants, cost-sharing arrangements, and strategic partnerships, while ensuring value-for-money and transparency (Republic of Cameroon, 2020; World Bank, 2021).

This study concludes that strategic planning is crucial for effective digital transformation in Cameroonian higher education institutions. In the cases examined, weaknesses in governance, resourcing, and capacity-building contributed to uneven implementation and limited scalability. By grounding institution-level strategies in national frameworks and evidence-based DT governance practices, Cameroonian universities can improve coherence, sustainability, and impact (Benavides et al., 2020; Bryson, 2018; MINESUP, 2022).

Capacity Building and Digital Literacy: Building human capital is a central plank of strategic planning. Even with the best technology, it is the people who use it that determine success. Our results indicated that while lack of training was not the most cited immediate concern, it remains a significant barrier to effective use of ICT. Thus, a strategy must provide ongoing faculty development programs in digital pedagogy and technical skills. Universities could institutionalize mandatory workshops or even certification courses for lecturers on using Learning Management Systems, virtual labs, and other educational software. Peer mentoring and communities of practice within universities can further support faculty to share experiences and tips. For students, integrating digital literacy into the curriculum is key – for example, offering first-year courses on information literacy, online research skills, and the productive use of educational technology. Over time, this capacity building fosters a digital-native academic community that can fully exploit the infrastructure provided. As Tondeur et al. (2020) advocate, empowering teachers through training is critical to integrating technology into teaching practice.

International Collaboration and Knowledge Sharing: Breaking out of the isolation that many Cameroonian institutions find themselves in is strategically advantageous. Partnerships can bring in not just funding, but also expertise and exposure to successful models. As our interviews highlighted, there is currently a lack of robust international cooperation in this arena. A strategic plan should identify and pursue collaborations – for instance, twinning programs with universities abroad that have advanced e-learning systems, participation in international consortia or research projects on digital education and inviting global tech companies to pilot educational programs in Cameroon. Recent examples are instructive: the University of M's nascent partnership with Nankai University in China and University A's link to Zhejiang University were mentioned by interviewees as promising avenues. These partnerships could

facilitate faculty exchanges, joint digital content development, or donation of e-learning platforms. Moreover, Cameroon can leverage South-South cooperation; learning from other African countries that have made strides in e-education (for example, Rwanda's nationwide smart classroom program or Nigeria's online university initiatives) could provide culturally relevant models to emulate.

By incorporating these pillars, Cameroonian universities can create a strategic roadmap that is both holistic and actionable. It is important to note that these elements reinforce each other. For instance, securing funding (Pillar 2) often depends on demonstrating good governance (Pillar 3) and having partnership proposals (Pillar 5) ready. Likewise, investing in infrastructure (Pillar 1) must go hand-in-hand with training users (Pillar 4), otherwise the technologies may be underutilized – a phenomenon observed in some past donor-driven ICT projects in Africa where equipment sat idle due to lack of local capacity.

Implications for Policy and Practice: Embracing a strategic planning approach has implications beyond individual universities. At the national policy level, this study's findings support the need for Cameroon's Ministry of Higher Education to update or craft a National Digital Transformation Strategy for Higher Education. Such a policy document could set common goals (e.g., all universities to have at least 50% of courses online-enhanced by 2025, or all student services to be digitized by a certain date) and provide guidelines and support for institutional plans. This top-down encouragement would legitimize and motivate bottom-up actions. Additionally, the government might consider ring-fencing a portion of the higher education budget for digital development, insulating it from other competing demands. International bodies (like UNESCO or the African Development Bank) reading this research might recognize an opportunity to target aid or technical assistance to Cameroon's higher education digital initiatives, knowing the areas of greatest need are infrastructure and capacity building.

For university management and practitioners, the key takeaway is that piecemeal efforts will not suffice. A lecturer trying to incorporate digital tools in an unsupported environment will likely face frustration. Conversely, our study shows that when a clear strategy is in place (even informally, as with one faculty in our survey that had its own ICT plan), the results are more encouraging — e.g., higher LMS adoption in those contexts. University leaders should thus engage stakeholders across their campus in developing a shared vision for digital transformation. This engagement itself can increase buy-in; as Al-Sharrah & Al-Qatawneh (2019) note, involving faculty and students in change management discussions helps in addressing cultural and attitudinal barriers.

The example in Table 1, while hypothetical, underscores the disparity that can exist within a single institution. Strategic planning aims to reduce such disparities by ensuring resources and training reach all faculties equitably. If one department has found an effective way to integrate, say, virtual labs or online assessments, those practices should be scaled across the university rather than remain isolated. Regular monitoring and evaluation should also be part of the strategy: institutions need to track metrics like the percentage of courses using e-learning, student satisfaction with digital services, or faculty competency levels, and use that data to iteratively improve their approach.

The discussion affirms that Cameroon's higher education system stands at a crossroads. The challenges are known and pressing, but they are not insurmountable. With deliberate strategic planning that secures resources, guides implementation, and fosters collaboration, the universities in Cameroon can transition from being ICT-lagging to becoming digitally empowered hubs of learning. The next section concludes the paper by summarizing the recommendations and highlighting the broader significance of pursuing digital transformation in the Cameroonian context.

6.0 CONCLUSION

The emergence of e-learning and digital technologies has unquestionably revolutionized higher education globally, providing students and educators with unprecedented tools and flexible learning options. In Cameroon, there is clear recognition at the government and institutional levels of the potential benefits that digital transformation can bring – from widening access to educational resources to enhancing the quality of instruction and administrative efficiency. Over the past two decades, various initiatives have laid the groundwork for this transformation. However, as this study has detailed, the country's higher education sector currently faces several critical challenges that prevent these initiatives from realizing their full impact. Chief among these are the lack of sufficient digital infrastructure, poor internet connectivity, and chronic underfunding of ICT in universities. These hurdles impede the integration of educational technology into teaching and learning processes and thus slow down progress toward a modern, digital-ready higher education system.

Addressing these issues is crucial for achieving Cameroon's long-term goals in the education sector. Without proactive measures, the digital divide within higher education will widen, leaving Cameroonian graduates at a disadvantage in an increasingly digital world. The solutions presented in this study offer a strategic way forward. By increasing investment in digital infrastructure and campus internet access, universities can create an enabling environment for e-learning and innovation. This includes not only hardware and bandwidth, but also ensuring reliable electricity and maintenance. By promoting international cooperation and partnerships, institutions can leverage external expertise, funding, and successful models to accelerate their own digital programs. This global engagement can take many forms – from participating in international research on digital education to forming exchange programs that build local capacity.

Improving governance and strategic planning for digital transformation emerged as a recurring recommendation. It is not enough to procure technology; effective usage demands planning and oversight. Therefore, universities and policymakers should focus on strengthening leadership and creating clear digital strategies that include stakeholder input and assign accountability for implementation. Good governance will ensure that investments in technology translate into tangible improvements in teaching and learning outcomes. Additionally, fostering a culture of continuous learning and adaptation (for example, through lifelong learning programs for staff to update their digital skills) will help sustain the momentum of transformation in the face of evolving technologies.

In summary, the findings and recommendations of this study can help pave the way for the successful digital transformation of higher education in Cameroon. By viewing the challenge through the lens of strategic planning, stakeholders can move beyond reacting to individual

problems and instead implement a cohesive plan that addresses root causes and builds resilience. The evidence suggests that if Cameroon commits to these strategic actions – investing wisely, collaborating broadly, and governing effectively – its universities will be better positioned to harness the full benefits of digital innovation. This will not only improve the quality and accessibility of higher education for Cameroonian students but also contribute to the nation's development by producing a digitally competent workforce and academic community. The journey to digital transformation is certainly complex and requires time, but with deliberate strategy and collective effort, Cameroon's higher education institutions can transform into dynamic, technology-enhanced centers of learning, research, and innovation.

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