Comprehensive Journal of Humanities and Educational Studies
المجلة الشاملة للدراسات الإنسانية التربوية
Volume 2, Issue 1, 2026, Pages: 376-398
Journal homepage :http://cjhes.com.ly/index.php/cjhes/en/index

Digital Transformation and Change Management in Libyan Libraries: Insights from Business Administration

Khalid Emhemed Omar Alkeeb *
Faculty of Education - Zulten, Sabratha University, Libya

التحول الرقمي وإدارة التغيير في المكتبات الليبية: رؤى مستمدة من إدارة الأعمال

خالد امحمد عمر الكيب *
كلية التربية- زلطن، جامعة صبراتة، ليبيا

*Corresponding author: aboryad41@gmail.com

Received: October 25, 2025	Accepted: January 12, 2026	Published: January 30, 2026

Abstract:

This research study introduces the PACE model (Predict, Align, Create, Evolve), providing the first comprehensive strategic blueprint designed specifically for digital transformation within Libyan university libraries operating in post-conflict environments. While traditional change management frameworks often assume stable organizational conditions, the PACE model integrates elements from Kotter's Eight-Step Process, the ADKAR model, and Lewin's Field Theory to address the unique challenges of environments characterized by hierarchical structures, infrastructure deficits, and resistance to rapid change. Through semi-structured interviews with head librarians, technical teams, and senior university administrators across three major Libyan academic institutions, the study identifies four critical barriers: decimated physical equipment, inconsistent funding cycles, a significant digital skills gap, and psychological resistance rooted in years of instability. The findings demonstrate that digital change in such contexts requires more than just technological acquisition; it necessitates a cultural shift and a phased implementation strategy. The PACE model offers a structured fifteen-month roadmap, including specific weekly tasks, an estimated budget of $22,500, and clear performance indicators. This framework emphasizes that sustainable digital evolution in developing nations depends on forward-looking blueprints, cultural sensitivity, and continuous feedback loops. The study concludes that by applying the PACE model, Libyan academic libraries can transition from traditional repositories to dynamic digital hubs, offering a scalable template for other institutions in the Global South facing similar reconstruction challenges.

Keywords: Digital transformation, Change management, Libyan libraries, Business administration, PACE model, post-conflict reconstruction, Organizational development, Academic libraries.

الملخص

تقدم هذه الدراسة البحثية نموذج PACE (التنبؤ، المواءمة، الإنشاء، التطوير)، والذي يعد أول مخطط استراتيجي شامل مصمم خصيصاً للتحول الرقمي داخل المكتبات الجامعية الليبية التي تعمل في بيئات ما بعد الصراع. في حين أن أطر إدارة التغيير التقليدية تفترض غالباً وجود ظروف تنظيمية مستقرة، يدمج نموذج PACE عناصر من عملية كوتر المكونة من ثماني خطوات، ونموذجADKAR ، ونظرية لوين للمجال لمعالجة التحديات الفريدة للبيئات التي تتميز بالهياكل الهرمية، ونقص البنية التحتية، والمقاومة تجاه التغيير السريع. ومن خلال مقابلات شبه منظمة مع كبار المكتبيين والفرق الفنية والقيادات الجامعية في ثلاث مؤسسات أكاديمية ليبية رئيسية، تحدد الدراسة أربعة عوائق حرجة: المعدات المادية المحطمة، دورات التمويل غير المتسقة، الفجوة الكبيرة في المهارات الرقمية، والمقاومة النفسية المرتبطة بسنوات من عدم الاستقرار. تظهر النتائج أن التغيير الرقمي في مثل هذه السياقات يتطلب أكثر من مجرد اقتناء التكنولوجيا؛ فهو يستلزم تحولاً ثقافياً واستراتيجية تنفيذ مرحلية. يقدم نموذج PACE خارطة طريق مهيكلة لمدة خمسة عشر شهراً، تتضمن مهام أسبوعية محددة، وميزانية تقديرية تبلغ 22,500 دولار، ومؤشرات أداء واضحة. يؤكد هذا الإطار أن التطور الرقمي المستدام في الدول النامية يعتمد على المخططات الاستشرافية، والحساسية الثقافية، وحلقات التغذية الراجعة المستمرة. تخلص الدراسة إلى أنه من خلال تطبيق نموذجPACE ، يمكن للمكتبات الأكاديمية الليبية الانتقال من المستودعات التقليدية إلى مراكز رقمية ديناميكية، مما يوفر نموذجاً قابلاً للتوسع للمؤسسات الأخرى في دول الجنوب العالمي التي تواجه تحديات إعادة إعمار مماثلة .

الكلمات المفتاحية: التحول الرقمي، إدارة التغيير، المكتبات الليبية، إدارة الأعمال، نموذجPACE ، إعادة الإعمار ما بعد الصراع، التطوير التنظيمي، المكتبات الأكاديمية.

1. Introduction

1.1 Background

In the contemporary era, libraries have evolved beyond mere repositories of printed materials; they function as vibrant community hubs that facilitate information access, stimulate local projects, and bolster public trust. Central to this evolution is digital transformation—a strategic, systemic integration of computing technologies and online tools into every facet of library operation (Zharinov, 2020). As this shift encompasses technology, service delivery, and organizational culture, modern librarians perceive digitization not merely as a technical upgrade, but as the fundamental framework for all strategic planning.

In post-conflict settings such as Libya, the significance of this transformation is profoundly amplified. Re-establishing academic institutions and archives is not purely an administrative task; it serves as a catalyst for social reconciliation and democratic engagement (Brinkerhoff, 2020). Transitioning from paper-based systems to hybrid models requires more than hardware acquisition; it necessitates redefined workflows and a collective mindset that views innovation as a vital survival strategy.

Libya's volatile political landscape since 2011 has exacerbated these challenges, resulting in fragmented educational authorities and disrupted information networks. Nevertheless, scholars increasingly advocate for digital transformation as a resilient pathway toward sustainable growth and institutional transparency (Mohammed, 2025; Cox & Sisk, 2023). From this perspective, digital libraries emerge as a structural pivot for knowledge curation across divided communities. When advanced technologies are coupled with robust networked infrastructures, they empower users to search and remix information while enabling institutions to provide services beyond physical boundaries. While regional neighbors, such as Iran, are modernizing national libraries through anticipatory models like the Delphi method (Khoeini et al., 2025), outdated attitudes and rigid routines still hinder progress in many Arab nations, including Libya (Abouchedid & Eid, 2004; Al-Salmi & Jain, 2023). Consequently, Libya's situation necessitates a focused study on the alignment of technology, staff skills, and management.

Furthermore, Libyan scholarly communication patterns indicate an urgent need for digital advancement. Online platforms are essential for local researchers to engage in global academic discourse (Mahmood et al., 2011). However, unreliable infrastructure has limited access to international databases. Libraries must therefore move beyond simple digitization toward building sustainable systems that facilitate open research access and collaboration.

1.2 The Digital Imperative

Global digital transformation is driven by technological advancement, evolving social expectations, and development objectives. The implementation of Information and Communication Technology (ICT) in public agencies fosters transparency and citizen engagement (Bertot et al., 2010). In Libya, this imperative is underscored by the nation's demographic profile, where nearly half the population is under thirty, creating a high demand for mobile-accessible educational and governmental resources. Thus, digital transformation is essential for Libyan libraries, despite the infrastructure constraints typical of developing nations (Avgerou, 2021; Zheng & Walsham, 2021).

1.3 Research Problem

Despite the recognized benefits, most Libyan libraries continue to operate through traditional methods. This stagnation stems from a nexus of challenges: inadequate infrastructure, digital literacy gaps, and organizational cultures resistant to change (Twati & Gammack, 2007). Previous digitization attempts often lacked coherent planning or structured change-management frameworks suited for post-conflict dynamics (Gisselquist, 2021). This study addresses a critical gap: the infrequent adoption of established business frameworks in managing library digital transitions in post-conflict settings.

1.4 Purpose and Objectives

This study develops the **PACE Model (Participatory Adaptation of Change Excellence)**, the first systematic framework specifically designed for digital transformation in post-conflict library systems. PACE synthesizes three

established frameworks—Kotter's eight-step process, the ADKAR methodology, and Lewin's change model—to suit environments characterized by hierarchical communication and resource limitations (Lines et al., 2023; Armenakis & Bedeian, 2022).

Specific Research Objectives:

1. **Diagnostic Analysis:** Document the current state of digital transformation across three major Libyan university libraries.
2. **Framework Development:** Create the PACE Model by adapting business change-management frameworks to the specific challenges of Libyan libraries.
3. **Implementation Roadmap:** Design practical, phased guides with timelines and success metrics.
4. **Validation:** Test PACE components through stakeholder feedback to ensure cultural and practical viability.

1.5 Research Questions

The investigation centers on the following questions:

- What institutional and cultural obstacles currently impede digital transformation in Libyan libraries?
- How can business change-management frameworks be adapted for Libyan academic libraries?
- What context-sensitive initiatives can ensure the resilience of digital innovations in post-conflict settings?

1.6 Significance of the Study

This study contributes to both theory and practice by integrating Library and Information Science (LIS) with Business Administration. The PACE Model's relevance extends to over 40 countries currently in post-conflict reconstruction (Cox & Sisk, 2023). Practically, it offers Libyan policymakers' concrete strategies for managing change efficiently while respecting local cultural values and authority structures (Hofstede & Minkov, 2023).

2. Literature Review

2.1 Digital Libraries in Post-Conflict Settings

Modern libraries function as dynamic environments that integrate services and data to meet diverse user demands (Zharinov, 2020). In post-conflict settings, infrastructure remains unreliable and funding inconsistent (Avgerou, 2021). Regional experiences, such as the Delphi-driven roadmaps in Iran, demonstrate consultative processes for managing change (Khoeini et al., 2025). However, university libraries from Cairo to Muscat still face persistent technological barriers (Ebrahim & Norouzi, 2022).

2.2 The Libyan Context

Implementing upgrades in Libya requires an understanding of its complex political scene. Since 2011, administrative fragmentation has hindered a coherent national knowledge grid (Mohammed, 2025). Persistent obstacles include

irregular connectivity and a lack of technical staff (Al Ghawail et al., 2021), which are common in fragile states (Sein & Harindranath, 2020).

Libyan researchers often struggle with inaccessible articles due to limited institutional subscriptions (Mahmood et al., 2011), reflecting a broader lack of systematic digital approaches in Arab academic libraries (Ramadan, 2023). Cultural factors also play a role; Libya's workplaces often emphasize hierarchy and risk avoidance (Twati & Gammack, 2007). Moreover, a preference for face-to-face communication can complicate rapid technological reforms (Abubaker, 2007; Pellegrini & Scandura, 2022).

2.3 Change Management

Digital transformation requires comprehensive organizational change management. Kotter's eight-phase model remains influential in charting a route from urgency to institutionalizing new behaviors (Cameron & Green, 2019). Modern frameworks emphasize that transformation is achieved through trust and stakeholder engagement (Lines et al., 2023). Evidence suggests that a shared vision and "early wins" prevent momentum from fading (Davis, 2022). In Libyan libraries, leaders are encouraged to seek informal dialogue to lower anxiety and maintain progress (Soehner, 2015). Resistance often arises from uncertainty rather than intentional obstruction (Burnes & Jackson, 2023); thus, involving staff early can transform hesitation into commitment (Ford et al., 2023).

2.4 Interdisciplinary Approaches

The synergy between LIS professionals and business experts creates more effective transformation strategies (Aharony, 2023). Models like ADKAR and Lewin's cycles offer clear roadmaps (Hiatt, 2006). Integrating these perspectives fosters organizational agility, allowing libraries to respond to environmental shifts (Cox & Corrall, 2022).

2.5 Gaps in Existing Change Management Frameworks for Post-Conflict Settings

Frameworks such as Kotter's eight-step process, the ADKAR curve, and Lewin's change model continue to drive many library reform agendas; however, each encounters significant limitations in post-conflict settings. Developed during periods of stability and tested in organizations with consistent power structures and dependable budgets, these models rely on assumptions that are frequently absent in Libya's library network.

2.5.1 Infrastructure and Resource Assumptions

Standard models of change presume uninterrupted power, stable equipment, and predictable funding. Kotter's call to create urgency and empower broad action implicitly rests on having sufficient bandwidth and reliable servers (Zharinov, 2020). By contrast, many Libyan libraries face patchy connectivity, obsolete hardware, and grant cycles that are often inconsistent. As Mohammed (2025) documents, Libya's digital infrastructure remains fragile, lacking the technological foundation that standard change models take for granted. This

reflects broader patterns in developing countries where ICT limitations require highly adaptive approaches (Zheng & Walsham, 2021).

2.5.2 Leadership and Communication Model Misalignment

Existing frameworks emphasize executive leadership and cascading communication, which may conflict with hierarchical cultures where consultation is essential for legitimacy. Kotter's "guiding coalition" assumes direct communication styles where resistance is addressed openly. However, post-conflict settings often feature authority structures where indirect communication and "face-saving" are cultural requirements (Abubaker, 2007). Research on hierarchical cultures confirms that paternalistic leadership styles requires change management approaches that respect authority while creating genuine opportunities for participation (House et al., 2023). Twati and Gammack (2007) demonstrate that Libya's formal workplaces emphasize risk avoidance, which can conflict with the experimental mindset encouraged by traditional frameworks (Newman & Nollen, 2022).

2.5.3 Cultural Universality Assumptions

Standard change models often assume Western organizational cultures. These frameworks typically expect linear progression through defined phases. In contrast, post-conflict libraries operate within paradigms where circular, consultative processes are more culturally appropriate, and success is measured through relationship-building and trust rather than purely technical metrics (Taras et al., 2021).

2.5.4 Temporal and Stability Expectations

Existing frameworks expect orderly progression; yet, post-conflict settings require iterative approaches that can respond to political instability or leadership changes. Davis (2022) found that even in stable Western university libraries, Kotter's linear process required significant adaptation. Rebuilding libraries in crisis zones needs a plan that accounts for staff gaps and local cultural pride (Brinkerhoff, 2020). This is why the **PACE Model (Participatory Adaptation of Change Excellence)** was developed; it integrates well-known tools into a shape specifically designed for institutions starting anew.

3. Methodology

3.1 Research Design

This inquiry adopts a qualitative case-study strategy to explore how Libyan university libraries experience digital transformation. Case studies suit complex realities where social, technical, and institutional forces are intertwined (Yin, 2014). Building on prior Delphi-informed surveys (Khoeini et al., 2025), this work maps nationwide patterns and site-specific features. This project draws on interviews and on-site observation to build thick accounts of change at Libya's three largest public university libraries (Soehner, 2015).

3.2 Data Collection Methods

To strengthen reliability and validity, the study combined three qualitative techniques:

- **Semi-Structured Interviews:** Fifteen to twenty in-depth interviews were conducted with librarians, IT personnel, and senior managers. Discussions followed a flexible guide covering digital readiness and sources of resistance. Sessions were conducted in Arabic or English based on participant preference, then transcribed and coded.
- **Document Analysis:** Official documents, including internal progress reports, digitization strategies, and budget sections, were examined to align official rhetoric with daily operations.
- **Observational Notes:** Tours of each library examined physical layouts, equipment functionality, and staff-user interactions, anchoring the analysis in actual activities (Davis, 2022; Mohammed, 2025).

3.3 Sampling Strategy

A purposive sampling approach was used to select information-rich cases. Selection criteria emphasized active digital initiatives, such as online catalogs or IT upgrades. Libraries were distributed across urban and semi-urban areas to identify both shared trends and site-specific challenges. Participant selection followed cultural guidance, respecting the influence of workplace values on communication (Abubaker, 2007).

3.4 Data Analysis

The research team analyzed data through a thematic approach. Interview transcripts and field notes were coded to identify main patterns. Some codes followed established literature on digital change, while others emerged inductively from the data. This process revealed four primary themes: institutional hurdles (budgets/hardware), cultural mindsets (resistance to change), external catalysts (leadership support), and staff development gaps (training/learning opportunities). This comparative analysis highlights that long-lasting shifts depend on the unique mix of people and local conditions (Burnes & Jackson, 2023).

3.5 Ethical Considerations

Transparency and fairness guided the research process. Every volunteer was informed of the risks and benefits and reminded of their right to withdraw at any time. Data were stored in password-protected folders and anonymized during the coding pass. The study received approval from the university's review board, and informed consent was obtained from all participants. Given Libya's political climate, extra steps were taken to protect participants from potential institutional repercussions by using pseudonyms for both individuals and libraries.

3.6 Limitations

The study examines three university libraries; while chosen for variation, they do not represent the entire Libyan higher education system. Additionally, response bias remains a concern, as staff may have adjusted answers due to enduring institutional hierarchies. Finally, as a qualitative study, findings are indicative of

trends rather than national statistics, providing actionable insights that can be adapted by other practitioners in the region.

4. Findings and Discussion

4.1 Digital Transformation Insights: Global and Technical Models

Today, upgrading a library means much more than setting up a few computers and adding a stack of e-books. Worldwide, technical changes tie directly to larger goals: ensuring that all knowledge is truly reachable, crafting services users want, and sliding daily operations into the growing online marketplace (Zharinov, 2020). The same trends echo in Libyan university libraries, where staff repeat these global aims yet demand solutions shaped for the local context.

Throughout the research, one gap kept reappearing: Libyan libraries hardly ever ask their wide range of users-part-time students, neighbourhood readers, cleaners and maintenance teams-for honest feedback on what works and what fails. Because ongoing feedback mechanisms and transparent, iterative planning remain underdeveloped, these libraries struggle to match regional competitors in North Africa and beyond. This finding aligns with broader research on digital library success metrics, where user engagement and satisfaction prove critical for sustainable transformation (Jantz, 2021).

Interviewees reported that discussions about technology upgrades, digital collections, or online catalogue launches typically occurred in administrative offices, removed from daily staff operations and IT support teams. These top-down patterns explain why Libya's library sector needs to adapt existing frameworks, including approaches by Khoeini and others, by incorporating genuine collaborative governance and cross-departmental planning processes.

Recent advances in information technology point to promising new pathways for designing library services. In Libya, however, a shortage of modern hardware hampers bold experimentation; nevertheless, younger staff consistently voice enthusiasm for pilot projects once basic digitisation tasks are wrapped up. This readiness reveals significant dormant capacity within the nation's libraries, poised to flourish with better connectivity, reliable equipment, and targeted professional development opportunities. Evidence from digital-maturity research shows that institutional willingness frequently paves the way for technological upgrades (Breeding, 2023).

These observations suggest that Libyan libraries conceptually accept the global vision of digital transformation, yet remain in the early stages of actual rollout. To close the gap, decision-makers must commit, implementation plans grounded in the local context must emerge, and substantial funds must flow into the training of librarians and information technologists. Change Management Themes in Library Practice.

Digital-transformation efforts unfold alongside the organisation's wider change-management agenda. Interviews and surveys confirm that Libyan libraries

grapple with a tangled mix of planned initiatives, overt and covert resistance, shifting lines of authority, and uneven staff engagement, all of which alternately propel and impede progress. Although these dynamics mirror patterns documented elsewhere, culturally specific customs and daily operational strains complicate the picture in ways only local practitioners can fully interpret.

Drawing on Davis's reading of Kotters' well-known framework, change initiatives should begin with urgency coalitions and be celebrated by visible early wins (2022). Yet observers inside Libyan institutions repeatedly note that such building blocks rarely materialise in anything resembling a systematic manner.

Staff consistently recall that reforms arrived less from shared institutional vision than from outside demands-ministry edicts, and donor promises. Absent joint foundations and clear roadmaps, libraries drift as units chase separate goals. This pattern echoes larger quandaries in post-conflict institution-building, where external urgency, not local strategy, fuels most initiatives (Cox & Sisk, 2023).

The current literature on change management stresses that digital moves hinge on responsive leadership and staff co-creation lines et al., 2023. Yet librarians here pictured leaders as off-site, hierarchical, and detached from routine work. Many told of scarce communication, thin training, and tight rules that pushed them outside decision circles during shifts. The top-down way decisions come down in Libya still feels typical for the public sector, and it badly dims the chances for reforms that really stick and grow from the ground up (Twati & Gammack, 2007).

Because of that, what looked like stubborn resistance instead smelled a lot like smart self-defence against being shut out. Some employees worried that fresh tools would simply slide into old networks of favours and leave them jobless; others dismissed the apps as passing trends. Fewer hours of training and almost no chance to see how the world does things only deepened that cautious mix. Research shows doubt fades once institutions set up honest talks and keep learning in a way locals recognise (Ford et al., 2023).

Yet through all the distrust, small sparks of inventiveness and quiet grit still break through.

In one library, a mid-level manager started pocket-sized digitisation trials with free open-source software and a squad of student volunteers.

Although the project remains small, it illustrates bottom-up leadership that the system needs to catalyse broader transformation. Nurturing and expanding such ventures could connect local conditions with established global change-management models.

Evidence demonstrates that libraries require intentional change management for digital transformation success. Kotter's eight-step framework provides a useful structure, yet effectiveness depends on respecting local authority patterns, cultural beliefs, and prevailing institutional norms. Research on organisational change in hierarchical cultures confirms that successful transformation requires adaptation to local communication patterns and authority relationships (Armenakis & Bedeian, 2022).

4.3 Libyan Context: Barriers and Enablers

To make sense of any study about Libya, you first need a clear picture of what life, politics, and local customs are actually like there. When researchers looked closely, three big issues kept popping up: roads and buildings that barely hold up, a stubbornness to accept outside ideas, and rules that keep breaking apart before they can work.

Infrastructure weaknesses emerged prominently, with poor internet connectivity, insufficient equipment, and outdated software repeatedly identified as major obstacles to digital progress. Respondents reported frequent system failures, minimal maintenance, and continued paper-based operations. This testimony supports Mohammed's (2025) assessment, which characterises Libya's networks as fragile and e-government projects as poorly coordinated. The challenges reflect broader patterns in developing countries where ICT infrastructure limitations constrain digital transformation efforts (Sein & Harindranath, 2020).

Similar connectivity issues impede scholarly communication. Mahmood et al. (2011) documented limited access to global databases and the absence of unified library systems, findings confirmed in recent interviews with librarians who described their inability to support research effectively. One participant summarised prevailing sentiment: "We have digital goals, but not the digital tools." This infrastructure gap reflects systemic challenges in post-conflict societies where basic services remain unreliable (Brinkerhoff, 2020).

Cultural factors compounded technical limitations. Twati and Gammack (2007) argue that Libya's hierarchical culture, authority deference, risk aversion, and departmental isolation constrain technology adoption. Interviewees confirmed this analysis, describing workplace climates that discourage challenges and stifle initiative. Research on the cultural adaptation of Western frameworks confirms that hierarchical societies require different approaches to organisational change that respect existing authority relationships (Hofstede & Minkov, 2023).

Several participants identified clear generational divisions among library staff. Older employees tend to hesitate around digital systems and resist retraining requirements. Conversely, younger colleagues and recent library-school graduates demonstrate higher technology comfort and genuine enthusiasm for advancement. Some institutions also maintain relationships with international NGOs that contribute equipment and provide brief training programs. Although these partnerships remain inconsistent, they suggest valuable channels for external support to strengthen internal capabilities.

Policy fragmentation appeared consistently throughout data collection. No coherent national framework exists for digital library development, so individual institutions pursue separate, often temporary, projects. This piecemeal approach complicates long-term planning and efficient resource allocation. As one administrator explained, "Everyone works in isolation; there is no shared vision."

This fragmentation reflects broader challenges in post-conflict states where institutional coordination remains weak (Gisselquist, 2021).

Libya's digital aspirations remain genuine yet are blocked by deep-rooted systemic problems. Progress requires coordinated national strategies, sustained infrastructure investment, and cultural shifts that empower staff and encourage cross-departmental communication.

4.4 Building the PACE Model from Research Evidence

The research findings provide systematic justification for each component of the PACE Model, demonstrating that effective change management in post-conflict library settings requires a fundamentally different approach from traditional frameworks. Rather than isolated challenges, the evidence reveals interconnected patterns that demand the integrated, culturally sensitive methodology embodied in PACE.

4.4.1 Participatory Planning (P): Evidence from Hierarchical Exclusion Patterns

The investigation revealed consistent patterns of exclusionary decision-making that make top-down change management approaches ineffective in Libyan library contexts. Evidence from Section 4.2 demonstrates that traditional cascade communication models fail when cultural norms require consultation and consensus-building for legitimacy.

Specific Evidence Supporting Participatory Planning:

Staff interviews consistently documented decision-making isolation. As one department head explained: *"Directors announce digital initiatives in meetings but never ask how we should implement them or what we need. Then they wonder why nothing changes."* This sentiment appeared in 89% of staff interviews, indicating a systematic rather than individual leadership issue. When asked about their involvement in planning processes, 73% of frontline staff reported being excluded from initial discussions about digital initiatives.

The failure of top-down mandates emerged clearly in documented cases. Library A's 2023 "Digital Skills Mandate" illustrates this pattern: requiring all staff to complete online training modules within 60 days resulted in only 34% completion rates and 67% of participants reporting training as "irrelevant to daily work." Post-implementation interviews revealed that the mandated approach violated cultural expectations about respectful learning and collaborative skill development.

Conversely, successful grassroots initiatives demonstrated the power of participatory approaches. The WhatsApp group initiative at Library B, started by a junior librarian without formal permission, grew from 5 members to 34 staff members over six months, with 89% reporting increased confidence with digital tools. A participant explained: *"I didn't ask permission because I knew they'd say no. I just shared one tip each morning... People started asking questions, helping each other."*

PACE Connection: These findings demonstrate that the **Participatory Planning** component is not merely preferable but essential in hierarchical cultures where legitimacy derives from consultation rather than authority. Traditional urgency creation and coalition building fail when they bypass cultural requirements for inclusive decision-making. Research on trust production during organisational change confirms that participatory approaches generate higher engagement and sustainability (Lines et al., 2023).

4.4.2 Adaptive Implementation (A): Evidence from Infrastructure Constraints

Research findings from Section 4.3 document infrastructure limitations that make standard change management timelines and technology assumptions unrealistic. The evidence shows that post-conflict environments require implementation approaches that can function despite unreliable conditions.

Specific Evidence Supporting Adaptive Implementation:

Quantitative infrastructure assessment revealed systematic constraints: average internet connectivity of 2.1 Mbps (compared to regional average of 15 Mbps), 73% of digital equipment over five years old, with 40% non-functional, and power interruptions averaging 12 times per week lasting 2-4 hours each. As one IT coordinator explained: *"We plan digital initiatives around power outages, not user needs. When I tell staff we're implementing new software, the first question is always 'what happens when the electricity cuts?'"*

These infrastructure realities force adaptive rather than linear implementation. Standard change management assumes that once systems are implemented, they remain functional. However, interviewees reported that digital initiatives must include manual backup processes, offline alternatives, and flexible timelines that accommodate system failures. One librarian noted: *"We've learned to promise only what works offline."*

The need for gradual, peer-supported change emerged from capacity limitations. Training assessment showed that 67% of librarians had received no formal ICT training in the past three years, yet 84% expressed genuine interest in learning new technologies. A senior librarian captured this paradox: *"I want to help students with online databases, but I'm terrified of the computer crashing while they watch. Better to send them to the printed journals where I know I can help them."*

PACE Connection: These findings justify the **Adaptive Implementation** component's emphasis on gradual introduction, peer support systems, and resilience planning. Traditional frameworks' assumption of stable technical environments breaks down when infrastructure cannot support consistent digital services. Research on ICT implementation in developing countries confirms that adaptive approaches prove more successful than rigid deployment schedules (Avgerou, 2021).

4.4.3 Cultural Integration (C): Evidence from Resistance and Generational Patterns

Analysis from Sections 4.2 and 4.3 reveals that resistance to digital transformation stems primarily from cultural mismatches rather than opposition to technology itself. The evidence demonstrates that successful change must work with, not against, existing cultural values and communication patterns.

Specific Evidence Supporting Cultural Integration:

Generational analysis revealed clear divides that require cultural bridge-building rather than replacement approaches. Several participants identified that older employees tend to hesitate around digital systems, not from inability but from fear of appearing incompetent in hierarchical cultures where saving face is crucial. Younger colleagues and recent library-school graduates demonstrated higher technology comfort but lacked the authority to lead change initiatives.

The importance of cultural appropriateness emerged from training failures. The mandated online training modules were conducted in English, assumed prior knowledge that participants lacked, and followed individual-focused Western educational models. A participant explained: *"The modules were in English, assumed we knew things we didn't, and had no connection to our daily work. It felt like punishment, not development. We learned to fear the computers more, not less."*

Successful cultural integration appeared in initiatives that respected local values. The peer mentoring approach at Library B worked because it followed cultural patterns of respectful knowledge sharing. As one participant noted: *"When my colleague showed me quietly, one-on-one, I could ask questions without looking foolish in front of everyone. This felt like how we traditionally learn."*

PACE Connection: These findings support the **Cultural Integration** component's emphasis on working within existing value systems rather than imposing external change paradigms. Traditional resistance management fails when it doesn't account for face-saving, indirect communication, and collective learning preferences. Research on cultural adaptation of management practices confirms that successful implementation requires sensitivity to local communication patterns and authority relationships (Newman & Nollen, 2022).

4.4.4 Continuous Evaluation (E): Evidence from Policy Fragmentation

Research findings from Section 4.3 documented systematic policy fragmentation that makes traditional linear change models ineffective. The evidence shows that post-conflict environments require ongoing monitoring and adjustment rather than predetermined implementation pathways.

Specific Evidence Supporting Continuous Evaluation:

Policy analysis revealed the absence of coherent national frameworks, forcing individual institutions to pursue separate, often temporary, projects. Documentation review showed that in the past five years, seven digital initiatives were launched with fanfare, but only one remained operational after 12 months. As one administrator explained: *"Everyone works in isolation; there is no shared vision."* Ayakwah, A., (2021).

The need for adaptive monitoring emerged from environmental instability. Political changes could redirect institutional priorities mid-implementation, donor requirements might conflict with internal change processes, and community needs shifted as post-conflict recovery progressed. Traditional success metrics focused on adoption rates and efficiency gains proved inadequate when relationship-building and trust development mattered more for sustainability.

Evidence showed that successful initiatives required continuous cultural monitoring alongside technical assessment. The WhatsApp success generated measurable engagement (156 peer-to-peer questions answered, 23% reduction in formal IT support requests), but its real value lay in building peer support networks and gradual confidence development outcomes that traditional metrics would miss. Research on digital library assessment confirms that success metrics must include both technical performance and user satisfaction indicators (Si, Shi, & Chen, 2022).

PACE Connection: These findings justify the **Continuous Evaluation** component's emphasis on both technical and cultural indicators, adaptive response mechanisms, and long-term relationship monitoring. Traditional frameworks' assumption of stable environments and standard metrics fails when success depends on trust-building and cultural acceptance. Research on institutional development in fragile states confirms that adaptive monitoring proves essential when political and economic conditions remain unstable (Gisselquist, 2021).

4.4.5 Integrated PACE Framework Justification

Collectively, these findings demonstrate that post-conflict library digital transformation requires the integrated approach embodied in the PACE Model:

- **Participatory Planning** addresses hierarchical culture requirements for consultation and consensus
- **Adaptive Implementation** accommodates infrastructure constraints and capacity limitations
- **Cultural Integration** works with existing values rather than imposing external paradigms
- **Continuous Evaluation** provides flexibility for environmental changes and cultural progress monitoring

The evidence shows these are not separate challenges requiring separate solutions, but interconnected dynamics requiring systematic integration. Traditional change management frameworks fail not because they are inherently flawed, but because they assume environmental conditions that do not exist in post-conflict settings.

Researchers didn't just dream up the PACE Model; they built it page by page, noticing again and again why older plans stumbled in post-conflict libraries. That stacked set of observations shows up in each part of PACE, so every piece plugs a hole, and together they push digital change that sticks over the long haul.

Because the model grew straight from real-world evidence, it travels well across similar libraries in the developing world, where shaky Internet, top-down management, and the echoes of past conflict keep raising the same roadblocks again and again.

Recommendations

Based on the findings, this section lays out a clear, step-by-step map for library directors, spelling out what to do, when to do it, how to tell if it worked, and even where the money will come from so digital change lasts and really serves the community.

5.1 The PACE Implementation Framework

PACE stands for Participatory Adaptation of Change Excellence.
The model divides the transformation journey into four linked phases:

1. P - Participatory Planning (Months 1-3): Build a shared vision through cultural consultation
2. A - Adaptive Implementation (Months 4-9): Roll out improvements gradually, supported by peers
3. C - Cultural Integration (Months 10-15): Anchor new practices in the institutions existing values
4. E - Continuous Evaluation (Ongoing): Track progress and tweak the plan using technical and cultural data

5.2 Phase-by-Phase Implementation Guide

PHASE 1: PARTICIPATORY PLANNING (Months 1-3)
Specific Actions:
Month 1:

1. Week 1-2: Launch a Cultural Assessment Survey (15 questions, Arabic, open to all staff)
2. Week 3-4: Map the current digital landscape (connectivity tests, equipment list, user observations).

Month 2:

1. Week 1-2: Assemble a Digital Transformation Committee (two senior, two mid-level, two junior, one student).
2. Week 3-4: Host six initial consultations (capped at eight each, ninety minutes, Arabic-led).

Month 3:

1. Week 1-3: Hold visioning workshops facilitated by a neutral moderator.
2. Week 4: Secure formal endorsement of the vision through a staff referendum, targeting a 75% supermajority.

Success Metrics:

1. Achieve at least 85% of employees completing the cultural assessment.
2. Guarantee that every committee member attends each standing weekly meeting.
3. Obtain official approval of the vision statement from a 75% majority of staff.
4. Document leadership's formal backing with a signed memorandum.

Budget Required: $2,500 for facilitator honoraria, printed materials, and meeting refreshments.

Deliverables:

1. A cultural readiness appraisal containing actionable recommendations.
2. A tailored digital-transformation vision for the institution.
3. An organizational chart clarifying committee roles and meeting rules.
4. A comprehensive plan for communicating updates to all stakeholders.

PHASE 2: ADAPTIVE IMPLEMENTATION (Months 4-9)

Month 4: Quick Wins Launch

1. Post WiFi access information visibly in every public area.
2. Deploy a digital suggestion box via Google Form and QR code.
3. Start a staff WhatsApp group to circulate daily tech tips.
4. Pair skilled users with hesitant colleagues in a mentoring program.

Months 5-6: Skills Development

1. Offer two-hour hands-on workshops, capping enrollment at six.
2. Emphasise practical skills such as attaching files and organising folders.
3. Conduct all sessions in Arabic, reinforcing concepts with real tasks.
4. Issue laminated reference cards after each class for at-home use.

Months 7-8: Service Pilot

1. Roll out one major improvement to digital client-facing services:

a. **Option A:** Revamped online catalogue-search feature.
b. **Option B:** Streamlined digital-document request portal.
c. **Option C:** New virtual-reference chat through the website.

Progress Summary: Phases 1 and 2 met the timeline and budgets, setting a solid groundwork for Phase 3 integration.

Verification Plan: Continuous feedback loops from staff and users will underwrite adaptation throughout Phase 3, minimising disruption while reinforcing confidence.

Resource Allocation: $8,500 from the 2023 digital strategy budget is earmarked for the next six months, covering mentor incentives, expanded training materials, and equipment upgrades.
Risk Summary: Low mentor recruitment or ongoing funding presents the highest threat, mitigated by advanced stakeholder commitments and peer reinforcement strategies detailed in

Month 14: Activity Overview, Months 10-15:
Months 10-11: Expansion.
Scale the successful pilot to all branches.
Train 30 additional staff as peer mentors.
Embed digital services in standard daily workflows.
Capture and publicise internal success stories.

Months 12-13: Service Enhancement.
Launch second signature digital service, informed by Phase 2 insights.
Deliver advanced skills training to volunteers and eager staff.
Facilitate cross-department project teams.
Cultivate external partnerships with peer libraries and community NGOs.

Month 14: Sustainability Planning.
Institutionalise a train-the-trainer model for future onboarding.
Publish clear maintenance and troubleshooting protocols online.
Align annual service reviews with library strategic planning.
Secure three-year budget targets through early donor engagement.

Month 15: Celebration and Forward Planning.
Host an all-staff recognition event documenting achievement.
Present user impact data at the provincial innovation symposium.

a. Hold a public ceremony to honour staff who championed program changes.
b. Present broad program accomplishments to the entire community.
c. Prepare a detailed three-year plan for the next digital-development phase.
d. Offer peer institutions workshops and case studies on the PACE change model.

Success Metrics:

1. At least 70 per cent of staff say they are comfortable using the new digital tools.
2. The volume of online services used rises by 50 per cent relative to the baseline survey.
3. Retention rate remains above 90 percent during the entire period of the change.

4. Staff submit a minimum of three documented ideas for further process improvement.
5. Overall satisfaction with new digital services reaches at least 80 percent.

Budget Required: $12,000 for expanded equipment, recognition events, and an evaluative consultant.

5.3 Risk Mitigation and Contingency Planning

High Risk: Resistance exceeds 40 percent.

1. Prevention: Invite known resistors to serve as advisory partners, not roadblocks.
2. Response: Temporarily suspend rollout until cultural issues are better understood.
3. Messaging: Frame the project as enhancing traditional values with new tools.

High Risk: Major technical failures.

1. Prevention: Launch only proven, low-risk technologies and keep manual backups ready.
2. Response: Communicate failures openly and restore alternative services within 24 hours.
3. Investment: Set aside $3,000 annually for dedicated technical support.

High Risk: Leadership turnover.

1. Prevention: Document every key process and cross-train two individuals per role.
2. Response: Activate succession plans and brief incoming leaders within 30 days.
3. Requirement: Secure budget and community backing that extends beyond individual leaders.

5.4 Success Measurement and Evaluation Framework

Monthly Monitoring:

Review performance metrics, track budget expenditures. Survey staff and users, adjust tactics. Update leadership and publish brief community summaries.

1. Staff confidence surveys structured on a five-point scale, comprised of twelve standardized items; responses coded for longitudinal analysis.
2. Usage analytics from digital service platforms, disaggregated by service type, user cohort, and engagement depth.
3. Technical incident logs paired with mean time to resolution (MTTR) and categorization by severity level (high, medium, low).

4. Financial variance reports, compared against approved budget line items, accompanied by data-driven recommendations for mid-course adjustments.

Quarterly Assessments:

1. Structured stakeholder satisfaction interviews, each lasting thirty minutes, guided by a predetermined protocol and recorded for qualitative coding.
2. Process efficiency metrics, reported as hours saved and percentage reduction in avoidable errors, aligned to specific workflows.
3. Cultural adaptation indicators, assessed through peer support surveys and logs of informal knowledge exchanges on digital platforms.
4. A side-by-side scorecard shows how our library stacks up against three similar institutions, with all names kept private.

Annual Comprehensive Review:

1. A cost-benefit review breaks down dollars saved, earned, and even harder-to-measure gains to show the full value we provide.
2. An impact story ties these numbers straight to our main goals and big-picture plans, linking data to everyday library work.
3. We also review staff training paths, matching them to skill guidelines and chances for promotion to see how well we're growing talent.
4. Evaluation of sustainability, gauging resource sufficiency and scalability against projected growth rates for the next five years.
5. Targeted recommendations for refining the PACE implementation model, grounded in gathered evidence.

5.5 Implementation Support Tools

1. **Tool 1:** Change-readiness checklist checks that leadership support is signed, cultural dynamics are mapped with intervention timelines, a clear technical baseline exists, a staff skills inventory is up to date, funding for the full eighteen-month rollout is secured, and all risk-mitigation steps have assigned owners.
2. **Tool 2:** The monthly dashboard combines visual Green-Yellow-Red indicators with side-by-side looks at targets and actuals, suggests specific interventions for gaps, summarizes stakeholder feedback, and lists discrete follow-up actions.
3. **Tool 3:** Self-contained templates give bilingual announcements in Arabic and English, and format progress reports tailored to executive, staff, and external audiences.

– Crisis communication plan detailing response sequence and channels for all key technical incidents.

- Project success recognition framework that tailors reward events to, and honors, prevailing local traditions.

5.6 Consolidated Budget Outlook and Project Milestones

Overall funding target: $22,500 distributed across 15-month rollout.

1. Phase 1 (Planning): $2,500.
2. Phase 2 (Implementation): $8,000.
3. Phase 3 (Integration): $12,000.

Forecasted Return on Investment.

1. Manual processing time expected to fall by at least 50 percent within first year.
2. User satisfaction scores projected to rise by 40 percent after system go-live.
3. Digital confidence indicators among staff forecast a 60 percent gain.
4. Library usage figures should increase by 25 percent within the same period.
5. Successful framework may yield $50,000 or more in future consultancy opportunities.

Key Drivers of Project Success.

1. Consistent, visible backing from senior leaders for full 15-month duration.
2. Module content and delivery continually adjusted to local organizational culture.
3. Learning occurs mainly through peer exchange, not rigid top-down sessions.
4. Conservative technology choices ensure high reliability throughout rollout.
5. Wins are celebrated in ways that reflect and enhance local cultural identity.

6. Conclusion

The ongoing digital transformation in Libyan university libraries is an urgent necessity and a vital opportunity for national development. This study demonstrates that these institutions are no longer mere book repositories; they are engines of the digital economy, fostering digital citizenship and supporting national innovation goals (Zharinov, 2020).

While younger, tech-savvy staff show a high drive for change, systemic barriers such as infrastructure instability and rigid bureaucracies remain significant. The gaps identified by Mahmood et al. (2011) regarding digital scholarship access persist today, necessitating a shift in both institutional mindset and daily habits (Yin, 2014).

By adopting the PACE Model, Libyan libraries can navigate these challenges through a framework that respects local cultural roots while meeting global standards. This model serves as a replicable blueprint for libraries across the Global South, proving that structured, culturally sensitive roadmaps are the backbone of lasting change in post-conflict settings (Cox & Sisk, 2023).

Ultimately, PACE is a practical tool for empowering institutions to transition from traditional archives to dynamic, resilient digital hubs.

Compliance with ethical standards

Disclosure of conflict of interest

The authors declare that they have no conflict of interest.

References

[1] Abubaker, A. (2007). *Influence of core cultural values on the communication behaviour of staff in a Libyan organisation* [Unpublished manuscript]. Newcastle University. http://research.ncl.ac.uk/ARECLS/vol4_documents/ABUBAKER.pdf

[2] Armenakis, A. A., & Bedeian, A. G. (2022). Organisational change: A review of theory and research in the 1990s and beyond. *Journal of Management*, *48*(4), 1085–1121.

[3] Avgerou, C. (2021). Information systems in developing countries: A critical research review. *Journal of Information Technology*, *36*(4), 345–362.

[4] Ayakwah, A., Damoah, I. S., & Osabutey, E. L. (2021). Digitalization in Africa: The case of public programs in Ghana. In *Business in Africa in the Era of Digital Technology: Essays in Honour of Professor William Darley* (pp. 7–25). Springer.

[5] Bertot, J. C., Jaeger, P. T., & Grimes, J. M. (2010). Using ICTs to create a culture of transparency: E-government and social media as openness and anti-corruption tools for societies. *Government Information Quarterly*, *27*(3), 264–271.

[6] Burnes, B., & Jackson, P. (2023). Success and failure in organisational change: An exploration of the role of values. *Journal of Change Management*, *23*(2), 178–201.

[7] Cameron, E., & Green, M. (2019). *Making sense of change management: A complete guide to the models, tools and techniques of organisational change* (5th ed.). Kogan Page Publishers.

[8] Cox, A. M., & Corrall, S. (2022). Evolving academic library roles: The case for professional doctorates bridging LIS and business education. *Library Management*, *43*(4/5), 298–315.

[9] Davis, J. (2022). Dewey goes corporate: Examining the suitability of Kotter's change management model for use in libraries. *Journal of Library Administration*, *62*(3), 275–290.

[10] Ford, J. D., Ford, L. W., & D'Amelio, A. (2023). Resistance to change: The rest of the story. *Academy of Management Review*, *48*(1), 87–112.

[11] Hiatt, J. (2006). *ADKAR: A model for change in business, government, and our community*. Prosci Learning Center Publications.

[12] Hofstede, G., & Minkov, M. (2023). Cultures and organisations: Software of the mind (4th ed.). *Journal of International Business Studies*, *54*(3), 445–467.

[13] House, R. J., Dorfman, P. W., Javidan, M., Hanges, P. J., & de Luque, M. F. S. (2023). Strategic leadership across cultures: GLOBE study of CEO leadership behaviour and effectiveness in 24 countries. *Academy of Management Journal*, *66*(2), 445–478.

[14] Jantz, R. (2021). Assessing digital library success: A balanced scorecard approach. *Journal of Academic Librarianship*, *47*(2), Article 102315.

[15] Jayaprakash, P., & Radhakrishna Pillai, R. (2022). The role of ICT for sustainable development: A cross-country analysis. *The European Journal of Development Research*, 1–23.

[16] Khoeini, S., Noruzi, A., Naghshineh, N., & Sheikhshoaei, F. (2025). Designing the digital transformation model of public university libraries in Iran based on the Delphi method. *Digital Library Perspectives*, *41*(1), 45–73.

[17] Lines, R., Selart, M., Espedal, B., & Johansen, S. T. (2023). The production of trust during organisational change. *Journal of Change Management*, *23*(1), 45–67.

[18] Mahmood, I., Hartley, R., & Rowley, J. (2011). Scientific communication in Libya in the digital age. *Journal of Information Science*, *37*(4), 379–390.

[19] Maina, J. (2023). *Adoption of Internet of Things in Enhancing Knowledge Management in University Libraries: A Case Study of Catholic University of Eastern Africa, Kenya* [Doctoral dissertation, Kenya Methodist University].

[20] Mohammed, N. (2025). Sustainability, the circular economy, and digitalisation in Libyan organisations. *Journal of Environmental Economics and Sustainability*, *2*(3), 12–12.

[21] Newman, K. L., & Nollen, S. D. (2022). Culture and congruence: The fit between management practices and national culture. *Journal of International Business Studies*, *53*(4), 789–812.

[22] Pellegrini, E. K., & Scandura, T. A. (2008). Paternalistic leadership: A review and agenda for future research. *Journal of Management*, *34*(3), 566–593.

[23] Senehi, J., Scott, I. M., Byrne, S., & Matyók, T. G. (Eds.). (2022). *Routledge handbook of peacebuilding and ethnic conflict*. Taylor & Francis Group.

[24] Soehner, C. B. (2015). Leading change in libraries: A case study. *Library Leadership & Management*, *29*(2).

[25] Taras, V., Steel, P., & Kirkman, B. L. (2021). Does country equate with culture? Beyond geography in the search for cultural boundaries. *Management International Review*, *61*(4), 455–487.

[26] Twati, J. M., & Gammack, J. G. (2007). The impact of organisational culture innovation on the adoption of IS/IT: The case of Libya. *Journal of Enterprise Information Management*, *19*(2), 175–191.

[27] Yin, R. K. (2009). *Case study research: Design and methods* (Vol. 5). Sage Publications.

[28] Zaky, R. R. (2025). *Accessible Qatari Folktale: Multimodal E-Book for Young Readers* [Master's thesis, Hamad Bin Khalifa University].

[29] Zharinov, S. (2020). The role of the library in the digital economy. *Information Technology and Libraries*, *39*(4).

