



# KIST Newsletter

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## Nurturing Excellence, Inspiring Innovation

The annual publication of the KIST Newsletter, released on the occasion of the KIST Fair, reflects the institution's sustained commitment to academic excellence, innovation, and intellectual engagement. As a valued tradition, the newsletter serves as a scholarly platform for faculty members, alumni, and students to articulate ideas, share research perspectives, and engage in meaningful discourse across the disciplines of science, information technology, and management. Through this collective intellectual endeavor, KIST continues to nurture a vibrant academic culture grounded in inquiry and collaboration.

The past year, consistent with KIST's tradition of excellence, has been marked by notable academic achievements that further underscore the institution's growing academic stature. Of particular significance is the outstanding achievement of a KIST student who was awarded the Rudra Kumari Ghimire Smriti Padak at Tribhuvan University's graduation ceremony for securing the top position among MSc Microbiology students. This distinction, alongside the consistently improving academic performance of our students, reflects the effectiveness of outcome-oriented pedagogy, dedicated mentorship, and a supportive learning environment.

KIST Fair, organized annually, has emerged as a dynamic forum for innovation and experiential learning. The steadily increasing participation from schools and colleges, coupled with a growing number of visitors, highlights the fair's

expanding reach and relevance. Inter-college competitions and exhibitions provide students with valuable opportunities to demonstrate creativity, critical thinking, and interdisciplinary problem-solving.

As we look ahead, KIST remains steadfast in its mission to nurture excellence while inspiring innovation through blended learning, goal-oriented academic practices, and community engagement. Guided by collective dedication and institutional values, KIST continues to strengthen its legacy as a distinctive, trustworthy, and committed center of higher



Friday 23 Magh 2082 (6 February 2026), Kathmandu

education, preparing students to contribute meaningfully to an evolving global society.

**Distinctive – Trustworthy – Committed**



### In this Issue

- Zoonotic Tuberculosis at Human-Animal Interface in Nepal **2**
- Low-Code/No-Code (LCNC) Platforms and Digital Transformation **7**
- Leveraging Gamification for Student Performance in Nepalese Higher Education Institutions **11**
- Foreign Employment and Remittance **14**
- From Hashtags to the Streets **16**

# Zoonotic Tuberculosis at Human-Animal Interface in Nepal

## Challenges, for Treatment, Diagnosis, Control and Prevention

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### Introduction

Tuberculosis (TB) is chronic debilitating disease of man and animal caused by members of the genus *Mycobacterium tuberculosis* complex (MTBC). TB has been known for thousands of years and remains a major public health challenge despite advancements in laboratory diagnostics and clinical management [1]. Although tuberculosis is a preventable and curable disease, with effective anti-tuberculosis drugs available for decades, it still causes approximately 10.8 million new cases and 1.25 million deaths each year. Among these, about 0.4 million cases and 0.15 million deaths are due to multidrug-resistant (MDR) TB, while extensively drug-resistant (XDR) TB poses an even greater challenge to treatment. However, majority of deaths were reporting in the developing countries, with more than half of deaths occurring in Asia and Africa. The WHO has set an ambitious goal to reduce TB incidence and mortality by 90% and 95%, respectively, by 2035 [2].

In Nepal, about 50% of the total population has latent TB infection. Each year, around 68,000 people develop TB, leading to about 16,000 deaths. Nearly 40% of TB cases (27,224 cases) are not diagnosed. In addition, about 3,000 drug-resistant TB cases occur annually, of which 75% (2,224 cases) are not detected or reported [3]. Nepal is agriculture dominated country where more than 60% of the population keeps livestock for livelihood. There is strong relationship between people and animals; unfortunately, this situation has created the possibility of disease transmission. Human suffering from bovine TB has reached to 3% of TB cases in other parts of the world where there is TB in livestock [4]. Bovine TB is main cause of intestinal TB (due to contamination from milk and meat). In Nepal there is no official data for bovine TB in human being since no extensive research in this area has been initiated. Since TB is widely prevalent in humans and animals of Nepal, there is a great chance of sharing of *Mycobacterial* species between human and animals.

TB is a chronic bacterial infection caused primarily by *M. tuberculosis* complex (*M. tuberculosis*, *M. bovis*, *M. africanum* and *M. microti*), which mostly affects lungs and can also affect other system. TB can also be caused by Non-tuberculous *Mycobacteria* (NTM). The isolation and identification of *Mycobacterial* species is very important for the early and effective treatment because conventional drugs may not be sufficient for treating NTM infection [5]. The conventional methods used for the diagnosis of *mycobacterial* pulmonary diseases like clinical symptoms, chest X-ray, sputum smear microscopy, tuberculin skin test, in vitro culture methods have their own limitations. Identification of the species of *mycobacterial* isolates is another critical requirement for clinical laboratories because most first line anti tuberculosis drugs has less in vitro activity against *M. avium* complex and *M. kansasii* [5]. Usually, identification of *Mycobacteria* in most of the hospitals and research laboratories in our country do not reach up to the species level. All suspected TB cases, when show growth on culture media are referred as TB and a prompt treatment is started. In addition to that culture method takes 6-8 weeks that delays treatment, further culture of *Mycobacteria* needs specialized laboratory which is not feasible in remote part of the country. These practiced activities are the main burden for the effective control and management of tuberculosis. The proper use of effective drugs is only the key requirement for the treatment caused by atypical *mycobacterium*. Hence, effective molecular diagnostic technique capable of early diagnosis up to species level is required to curb the rapid spread of this disease. Additionally, *Mycobacterial* species of livestock that are in close contact with people should be identified. Till date, TB in animals is diagnosed by skin test that has low sensitivity and specificity [6]. Thus, effective molecular diagnostic techniques should be developed to detect TB in animals. Some work has been initiated for diagnosis of TB using Loop-mediated isothermal amplification assay (LAMP) technique at Everest International Clinic and Research Center in collaboration with Department of global epidemiology, Research center for zoonosis control, Hokkaido University.

### Zoonotic Tuberculosis

Tuberculosis (TB), one of the leading bacterial infections worldwide, is caused by the *Mycobacterium tuberculosis* complex (MTBC) and is primarily transmitted through the air from person to person [2]. The MTBC comprises a genetically related group of *Mycobacterium* species that infect both humans and animals, including *M. tuberculosis*, *M. africanum*, *M. orygis*, *M. bovis*, *M. microti*, *M. canettii*, *M. caprae*, *M. pinnipedii*, *M. suricattae*, and *M. mungi*, among others [7], [8] (Figure 1). Most of these species exhibit host specificity; including humans, animals, and the BCG vaccine strain (Figure 1) [9]. However, some species of *Mycobacterium* like *M. tuberculosis* exhibit zoonotic nature and may spillover from animal hosts like livestock and wildlife to human populations [10], [11]. TB has been known for thousands of years and remains a major public health challenge despite advancements in laboratory diagnostics and clinical management [1].

Zoonotic diseases are major threats for public health. TB is one of the zoonotic diseases with complex pathophysiology both in human

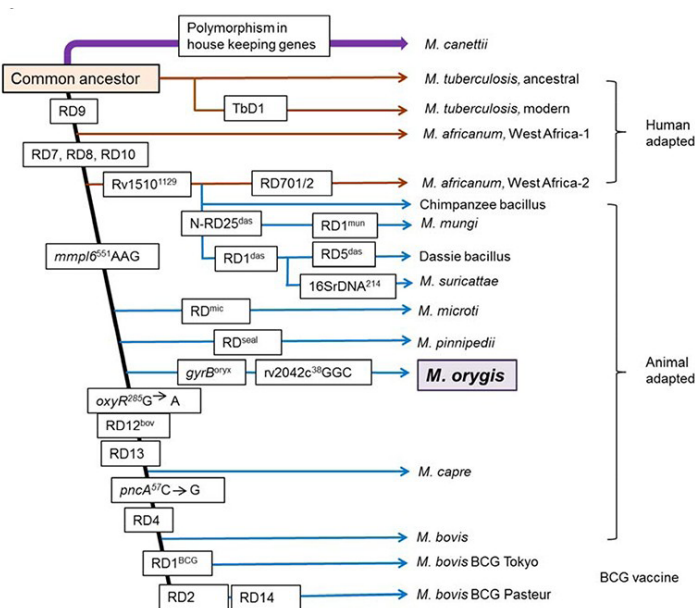
and animals. Thus, it is very essential to trace the ecological source of TB between humans and animals. Dairy sector is one of the major components of the livestock and has great role in national economy but there hasn't been progressing this sector as per its potentials. Cattle and buffaloes are mostly reared for milk production in Nepal. As milk production ceases, either due to old age or certain disease conditions except cattle, buffaloes are sold for slaughter. The slaughter houses are ill-managed with no proper monitoring on the quality and in farmers' level there is no screening and destruction of positive reactors. At slaughterhouses 14% of buffaloes were found to have tuberculosis lesions [12]. However, *M. tuberculosis* and *M. bovis* are endemic in human and livestock population in Nepal [10].

In Nepal, tuberculosis caused by different members of the MTBC has been detected in different animal species, including Asian elephants, greater one-horned rhinoceros, deer species, and blue bull, using molecular genotyping tools (Table 1) [13], [14], [15]. Notably, two captive Asian elephants were found to be infected with mixed *M.*

tuberculosis lineages (Indo-Oceanic and Beijing/CAS-Delhi) through whole-genome sequencing analysis (Table 1) [16]. In addition, TB screening of cattle and buffaloes from 60 households of TB patients using the single intradermal tuberculin test indicated a high risk of bovine TB transmission between animals and humans [17]. Similarly, a study of 123 cattle showed bovine TB positivity rates of 9.76% by comparative tuberculin test, 37.4% by rapid test, and 5.7% by ELISA, highlighting a substantial risk of zoonotic TB transmission at the cattle–human interface in Nepal [18]. These studies findings suggest that interspecies transmission of TB between humans and animals in Nepal. Therefore, comprehensive studies on MDR-MTB strains with including pulmonary TB, and zoonotic TB transmission in Nepal are needed.

Nearly 75% of all new emerging or re-emerging diseases affecting humans at the beginning of the 21st century have originated in animals. The speed with which these diseases can emerge and spread presents serious public health, economic and development concerns. It also underscores the need for the development of comprehensive disease detection and response capacities, particularly in areas like Nepal where disease threats are likely to emerge. It is very important to give emphasis in early identification and response to dangerous pathogen in animals before they can become significant threats to human health. One world one health movement where human and animal health professional work together to address world’s most challenging health concern is gaining momentum globally and it is very timely to build the similar capacity in Nepal.

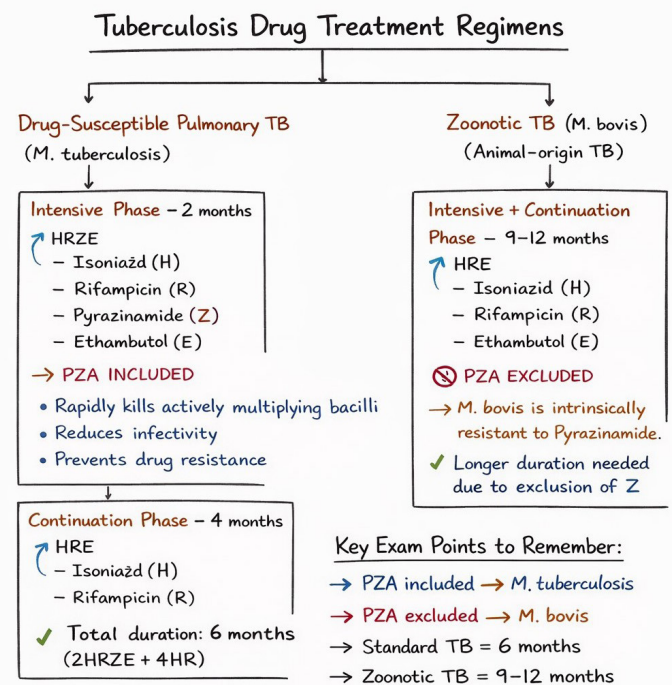
In addition to the commonly observed human TB, numerous studies on domestic, free-ranging, and wild animal populations have consistently reported the isolation and detection of various MTBC members in multiple animal species [19], [20], [21]. However, the epidemiology, ecology, and transmission dynamics of zoonotic TB remain poorly understood, and the pathobiology of animal-adapted MTBC species in domestic and wild animals is still inadequately described. Therefore, comprehensive surveillance, incorporating both active and passive approaches and biological investigations are needed to clarify the epidemiological patterns, transmission dynamics, risk factors, and pathogenic mechanisms driving zoonotic TB across humans, livestock, and wildlife in Nepal.



**Figure 1:** Updated phylogeny of *Mycobacterium tuberculosis* complex (MTBC). The phylogeny is based on the presence or absence of region of differences and single nucleotide polymorphisms and adapted from [9], [22], [23], [24], [25], [26].

## Challenges for Treatments and Control

Tuberculosis therapy generally consists of 6-to-9-month course of Isoniazid, rifampicin, streptomycin, thioacetazone, pyrazinamide and ethambutol. Most first-line anti tuberculosis drugs have 10-100 times less in vitro activity against *M. avium* complex isolates than against *M. tuberculosis* due to the lipophilic cell wall of *M. avium* complex, which prevents drug penetration. The timely identification of person infected with tuberculosis and their rapid laboratory conformation of tuberculosis are two key ingredients of effective public health measure for the control of the TB. More importantly, there is no system to differentiate human TB caused by *Mycobacterium tuberculosis* from that caused by *Mycobacterium bovis* in Nepal [27]. As a result, the same standard treatment regimen is commonly used for both, despite *M. bovis* being naturally resistant to pyrazinamide, a key first-line anti-TB drug. This leads to suboptimal therapy, delayed recovery, and reduced treatment effectiveness [28]. Moreover, zoonotic TB frequently involves extrapulmonary sites, where drug penetration is limited, and is often diagnosed late due to inadequate detection methods; further complicating management and highlighting the need for tailored diagnostic and treatment strategies (Figure 2).



**Figure 2:** Standard TB drug treatment regimens

## Diagnosis (Figure 3)

Diagnosis of active disease includes clinical suspicion, chest radiographs, staining for acid-fast bacilli, and culture for mycobacterium, more recently molecular test has shown potential.

### Acid-fast Microcopy

Acid-fast microscopy is done for the rapid identification of patients with mycobacterium infection, utilizing ‘acid fast’ property of mycobacterium. Presently; two types of acid-fast stains are used in laboratories. One is carbol fuchsin (Ziehl-Neelsen (Zn) or Kinyoun staining methods) and the other is flurochrome (usually auramine or aurmine-rhodamine). In the carbol fuchsin procedure, acid-fast organisms appear red against a blue background, while in the flurochrome procedures; the acid-fast organisms appear as fluorescent rods, yellow to orange (the colour may vary with filter system used) against a pale yellow or orange background. This method detects 5,000-10,000 bacteria per ml with sensitivity range between 46-78%.

## Culture

Until now, culture is taken as a gold standard method for diagnosis of mycobacteria in the specimen. There are two types of culture media: solid media, which include egg-based media (Lowenstein-Jensen and Ogawa medium) and agar-based media (Middle brook 7H10 and 7H11). Cultures should be inoculated onto one or more solid media and into a liquid medium. At least three respiratory (sputum) cultures should be used for the initial evaluation. Lowenstein-Jensen is an excellent medium for recovery of *M. tuberculosis*, but is generally inferior to middle brook agar as an all-purpose medium for both *M. tuberculosis* and NTM. Cultures are examined weekly for growth; contaminated cultures are discarded and reported as "contaminated, unable to detect presence of mycobacteria". Most isolates appear between 3 and 6 weeks; a few isolates appear after 7 or 8 weeks of incubation. Sputum culture is a highly sensitive diagnostic method that permits detection of a minimum of 10 to 100 viable bacilli per ml. of cultured material. Culture is more sensitive for the detection of mycobacteria than acid-fast microscopy. It provides drug susceptibility tests and genotyping of particular cultured NTM can be used for epidemiologic purposes and to rule out cross contamination.

## Nucleic acid amplification methods

Nucleic acid amplification method uses purified enzymes to isolate and then replicate specific nucleic acids to levels where they can be detected. The most common and widely used is Polymerase Chain Reaction (PCR). Tuberculosis can be detected with the help of PCR. The TB diagnostic potential from nucleic acid amplification method has opened the window for the opportunity for the rapid diagnosis of TB. Traditional methods for laboratory diagnosis of tuberculosis (TB) may require weeks, and delay can impede treatment and control efforts. Nucleic acid amplification (NAA) tests, such as PCR, LAMP other methods for amplifying DNA and RNA, may facilitate rapid detection of microorganisms.

## Loop-mediated Isothermal Amplification (LAMP)

Loop-mediated isothermal amplification (LAMP) is novel nucleic acid amplification method that amplifies DNA with high specificity, efficiency and rapidity under isothermal conditions. It starts with the mixing of the buffer primers, DNA lysates and DNA polymerase in tube, and then the mixture is incubated at 64°C for 1 hour based on principle single strand displacement method. Visual judgment eliminates the need for any laboratories and time consuming post amplification operations such as hybridization and electrophoresis as well as the need for special equipment. Therefore, LAMP is a highly sensitive and specific DNA amplification technique suitable for diagnosis of any infectious disease both in well-equipped laboratories and in field situations. Suzuki (2007) tested a total of 200 sputum samples from Nepalese patients for LAMP. The sensitivity of MTB-LAMP in culture-positive samples was 100% (96/96), and the specificity in culture-negative samples was 94.2% (98/104). These results indicate that this MTB-LAMP method may prove to be a powerful tool for early diagnosis of TB in Nepal. This research should be further extended and validated.

## Immunological diagnosis

Although culture is considered the gold standard, it has serious limitations with time of culture, lab facility and with extra pulmonary TB. In the search for rapid and cost-effective diagnostic methods for TB, immunodiagnosis is considered an attractive option. Basically, it uses the specific humoral and cellular immune responses of the host to the presence of infection or disease [30]. In the last decade, extensive studies have shown that immunodominant antigens, such as the ESAT-6 and CFP, are highly suitable for detecting infection. One of the most significant developments in the diagnostic for TB in the last hundred years seems to be the assays based on IFN- $\gamma$  determination. The assays stem from the principle that T cells of sensitized individuals produce IFN- $\gamma$  when they re-encounter the antigens of *M. tuberculosis* [31]. The assay of IFN- $\gamma$  determination for the detection of latent infected individuals appear promising but it remains to be seen whether this will translate into practically useful results in the field [32].

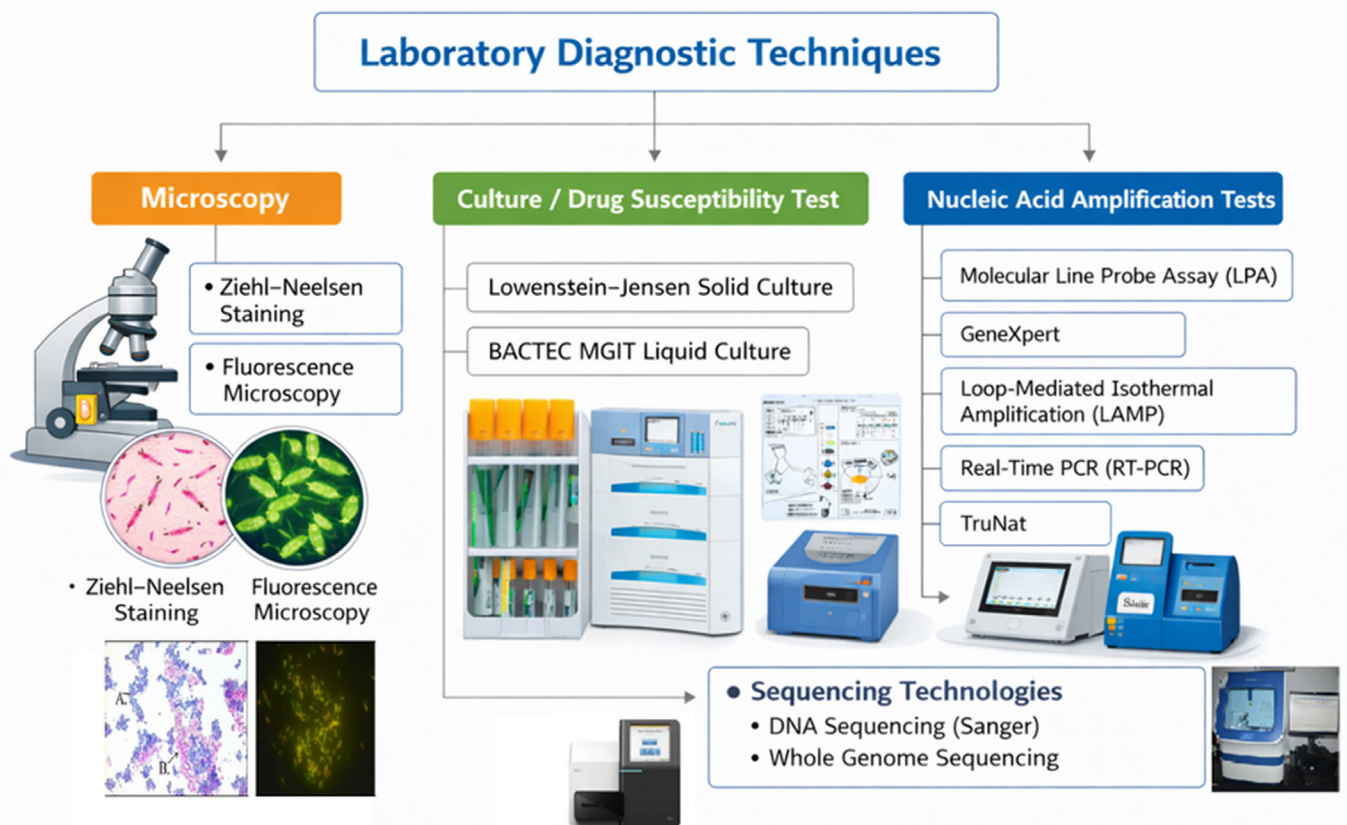


Figure 3: Laboratory diagnostic techniques

## Recommendation Control and Prevention for Zoonotic tuberculosis

- ◆ National Tuberculosis Control Programme (NTP) in Nepal should be strengthened to international standards with availability of general laboratory services including molecular rapid and low-cost assays like (LAMP), Truenat and that can be used for early detection and surveillance of bovine TB and free ranging in animals and humans in resource limited countries like Nepal
- ◆ Artificial intelligence integrated laboratory technologies should be employed and established across Nepal to strengthen the diagnosis and surveillance of zoonotic tuberculosis and other zoonotic diseases.
- ◆ Surveillance system should be strengthened to monitor the MTBC transmission in Nepal by providing better TB-screening and effective treatment and diagnosis strategies within the country and in border areas.
- ◆ Government of Nepal (GON) should develop strategies to reduce transmission, and to prevent and control zoonotic tuberculosis, based on evidence from previous studies. The urgent implementation of comprehensive surveillance and preventive measures is essential to safeguard both captive and wild animals including Asian elephants, rhinoceroses, deer, and blue bulls as well as humans who are in frequent contact with them.
- ◆ Zoonotic TB diagnosis and treatment guidelines should be developed and endorsed in context to Nepal
- ◆ Nepal shares a long border with India, a country with the highest TB burden in the world; therefore, collaboration between public and private sectors is required.
- ◆ GoN should act immediately to strengthen the screening facilities across the country to identify and treat the latent and active TB infected in human and animal species.
- ◆ The concerned health and animal authorities should revise diagnostic protocols across all sample types and tests to enhance zoonotic tuberculosis detection, monitoring, and control, thereby reducing its transmission risk in Nepal.
- ◆ International recommendations of One Health approach should be leveraged to reduce the zoonotic TB threat in Nepal.

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Year	Location	Sample Type	Sample size	Host	Necropsy	Phenotypic	Genotyping tools	Diagnosis Mycobacterium Spp	Reference
2007-2010	Chitwan National Park, Nepal Koshi Tappu Wildlife Reserve, Nepal	Lung tissues	3	Elephant	Granulomatous nodules in the lungs and bronchial lymph nodes with caseous foci. -Caseocalcareous	Microscopy Culture DNA extraction Drug susceptibility test	Spoligotyping MLVA SNP DNA sequencing	<i>Mycobacterium Tuberculosis</i>	Poudel et al., 2014
2014	Captive Wild animal facility Nepal	Lung and extra pulmonary granulomatous lesions	2	Deer ( <i>Axis axis</i> ) Blue bull ( <i>Boselaptius tragocamelus</i> )	No details	Microscopy Culture DNA extraction	Spoligotyping MIRU-VNTR MLST	<i>Mycobacterium Orygis</i>	Thapa et al., 2015
2015	Chitwan National Park, Nepal	Lung tissues	1	Rhinoceros	Several granulomatous lesion observed in lungs with encapsulated and contained caseous necrotic material	Microscopy Culture DNA extraction	Spoligotyping MIRU-VNTR Multiplex PCR Region of difference MLST	<i>Mycobacterium Orygis</i>	Thapa et al., 2016
2013	Chitwan National Park, Nepal Koshi Tappu Wildlife Reserve, Nepal	Lung Tissues	2	Elephant	Mixed infection postmortem in both elephants	Microscopy Culture DNA extraction Drug susceptibility test	Spoligotyping LSP MLVA SNP DNA sequencing	<i>Mycobacterium tuberculosis</i> mixed infection Indo-Oceanic, East African-Indian (CAS-Delhi) lineages; Indo-Oceanic and East Asian (Beijing) lineages.	Poudel et al., 2019
2019-2022	Chitwan National Park, Nepal	Lung Tissues	9	Elephant	No details	Microscopy Culture DNA extraction Drug susceptibility test	Spoligotyping LSP MLVA SNP DNA sequencing PCR LAMP	<i>Mycobacterium tuberculosis</i> mixed infection (Indo-Oceanic and (Beijing) lineages.	Pandit et al., 2024

**Table 1: Detection of Zoonotic TB in Various Captive and Wild Animals in Nepal**

MLVA: Multi-locus variable number of tandem repeat analysis; SNP: *Single Nucleotide Polymorphism*; MIRU-

VNTR: *Mycobacterial Interspersed Repetitive Unit-Variable Number of Tandem Repeats*; MLST: *Multi-Locus Sequence Typing*; LSP, Large Sequence Polymorphisms; PCR; Polymerase chain reaction, LAMP: Loop-mediated Isothermal Amplification

# Low-Code/No-Code (LCNC) Platforms and Digital Transformation: Bridging the IT–Business Divide with Citizen Developers

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## Introduction

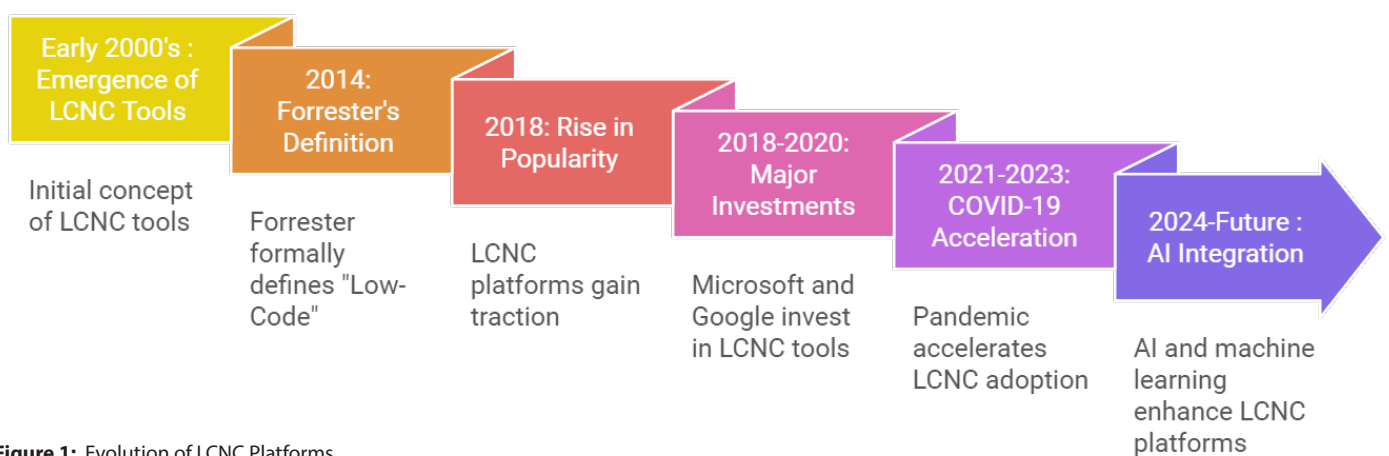
Digital Strategy and Digitization of services are at the core of every organization's growth and customer experience journey. Digital Transformation is the process of integrating digital technologies into all aspects of an organization's operations, in a way transforming how it creates value for its customers and competes with its competitors in the marketplace. Digital Transformation has become a vital aspect of an organization/enterprise's growth and resilience to the varying market demand and increasing digital services demand [1].

The bottleneck of traditional software development methods being slow, expensive, resource intensive and non-negotiable coding skills, has led to the rise of the Low-Code and No-Code (LCNC) platforms, which provide a simple and structured way to develop applications without extensive programming language [2]. Low-Code platforms are designed to streamline development through a visual interface combined with the option for custom code, making them suitable for applications with moderate complexity. No-Code platforms, on the other hand, are fully visual and template-driven, allowing users with no coding knowledge to develop applications using drag-and-drop components[3]. This allows everyone who is not an IT employee often termed as "citizen developer" to participate in the development of applications and, therefore, democratizes access to digital innovation within organizations[4].

By streamlining the developmental paradigm, Low-Code and No-Code (LCNC) platforms facilitate organizations capacity to swiftly adapt to evolving business imperatives, diminish reliance on specialized development personnel, and enhance operational responsiveness. Prominent technology firms, including Microsoft, Google, and Salesforce, have committed substantial resources to LCNC platforms, seamlessly incorporating these instruments into their ecosystems to bolster enterprise-level digital transformation initiatives[5]. Challenges such as security and compliance emphasize the importance of structured governance frameworks and robust security protocols to ensure that LCNC solutions support digital transformation effectively and safely[6]. Despite these challenges, industry projections suggest that LCNC solutions could represent up to 65% of all application development activity by 2027, underlining their growing role in digital transformation[7]. Recent advancements in artificial intelligence (AI) and machine learning (ML) are further enhancing LCNC platforms by automating processes, providing intelligent component suggestions, and improving user experience through personalized development environments[8].

## Background and Evolution of Low-Code and No-Code Platforms

LCNC platforms emerged from a growing need for agile development processes and a shortage of skilled developers, for faster and more accessible digital solutions. The roots of LCNC platforms date back to early attempts to create user-friendly software tools that enabled some degree of application development without requiring traditional coding skills[9]. From early 2000's developing initial concept, Forrester[10] defining Low-Code in 2014, gaining traction in 2021-2023 COVID-19 pandemics, LCNC's chronological development can be viewed as:



**Figure 1:** Evolution of LCNC Platforms

## Fundamentals of Low-Code Development vs No-Code Development

LCNC has been leading the current software development and technology area in terms of functions and capabilities. These are two different approaches to creating software applications and solutions. Low-code is a technique for developing applications that converts textual coding to visual. Low code uses a model-driven, drag-and-drop interface approach instead of a technical coding environment. By utilizing a robust visual programming environment with drag-and-drop functionality and pre-existing components, no-code development allows users to construct web and mobile applications without ever writing a line of code[11].

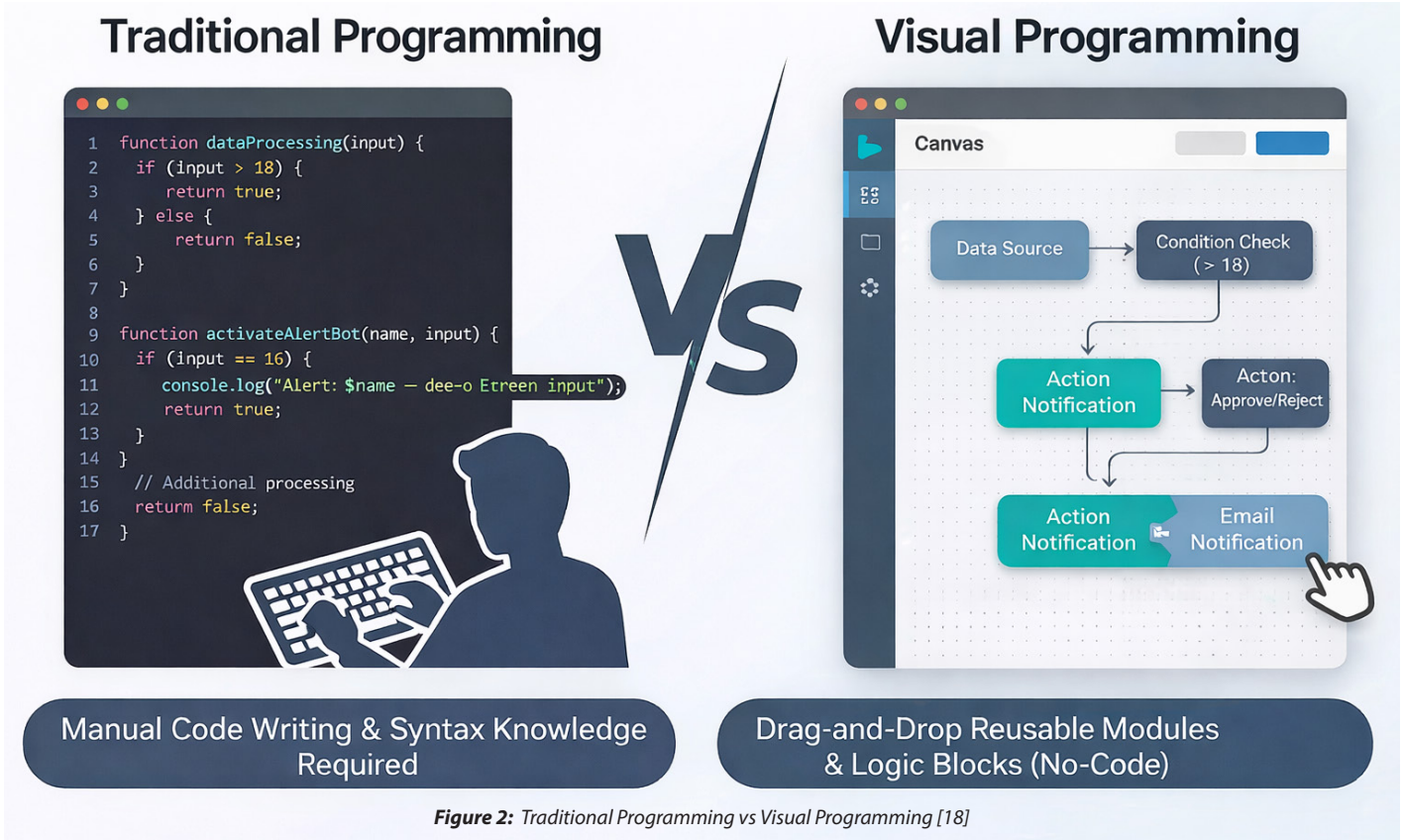


Figure 2: Traditional Programming vs Visual Programming [18]

**Characteristics of Low-Code and No-Code Development:**

- Visual Modeling: Drag-and-drop tools and visual interfaces allow both professional and citizen developers to build and deploy applications quickly with minimal effort.
- Reusable Components: Pre-built templates, modules, and integrations make it easy to create cross-platform applications without starting from scratch.
- Scalable Environments: Applications can be updated or expanded easily as business needs and user demands evolve.
- Data Integration: Data from different systems and services can be connected securely, enabling smooth information flow across applications.
- End-to-end lifecycle support: Low-code platforms support the full application lifecycle from planning and development to testing, deployment, and maintenance using Agile and DevOps practices.

**Use Cases of Low-Code and No-Code Platforms:**

- Legacy Application or Outdated Systems Modernization
- Process Automation of Business Operations
- Improve Digital Experience through Solutions
- Rapid Prototyping and Development
- Compliance and Risk Management

**Popular Low-Code and No-Code Development Platforms:**

Some of the most popular low-code development platforms are listed below in Table 1[12].

Table 1: Popular Low Code and No Code Platforms

S.N	Low Code Platforms	No Code Platforms
1	OutSystems	Bubble
2	Appian	Airtable
3	Microsoft PowerApps	Webflow
4	Salesforce Lightning	Zapier
5	Mendix	Quickbase
6	Zoho Creator	Flutterflow
7	Creatio	

**Comparison between Low-code and No-Code Development Platforms:**

Key Differences between Low-Code and No-Code Platforms based on different criteria compared:

Table 2: Low Code Development vs No Code Development[13]

Criteria	Low-Code Development	No-Code Development
User Base	Semi-Technical and IT Personnel	Business Users and Non-Technical
Flexibility	High	Limited Customization
Use Cases	Complex Applications	Simple Automation, Workflows
Customization	Allows for some custom coding.	Does not require any coding.
Security	Requires some attention to security but can be customized.	Security can be a concern due to lack of control.
Cost	Can be more expensive due to the need for coding talent.	Generally more cost-effective due to the ease of use.
Scalability	Better positioned for scalable solutions.	Limited ability to scale complex apps.

**Architecture of LCNC Platforms**

From an architectural perspective, LCNC platforms are structured around four main layers, which can be explained as:

- Application Layer: This topmost layer provides the graphical environment to use toolboxes and widgets to actually build the interface and logic. Here, it is defined how the app pulls data from sources like spreadsheets or sensors and then decide what to do with it.
- Service Integration Layer: This layer connects the platform to external services via APIs and authentication protocols. It facilitates seamless interaction with diverse services, ensuring that external functionalities integrate effectively into the application being developed.
- Data Integration Layer: This layer is tasked with the integration of information from multiple origins, and allows users to uniformly engage with and manage data, independent of its source. It's the secret to keeping workflows smooth and consistent, regardless the origin of raw data.

- **Deployment Layer:** The concluding layer oversees the deployment of developed applications, whether we are using cloud or own private servers. It handles the heavy lifting of containerization and CI/CD to ensure your app stays fast and reliable once it is pushed live.

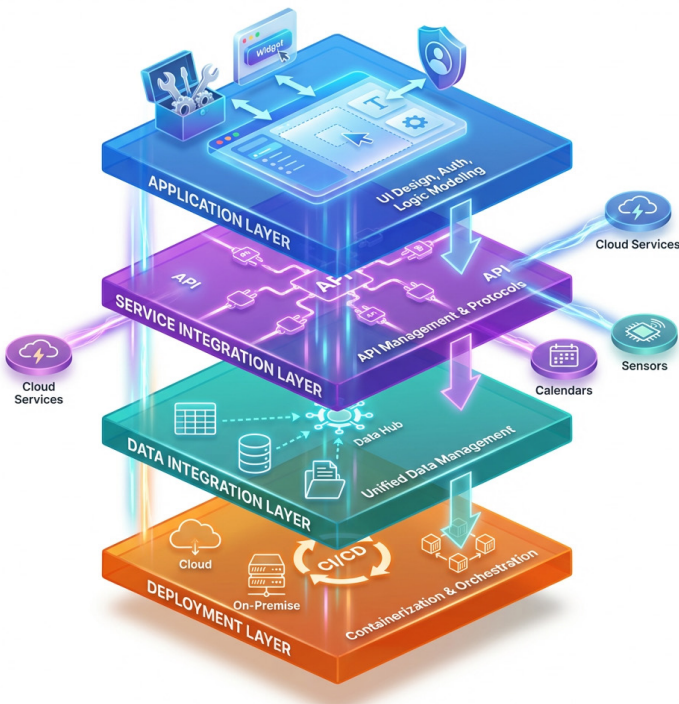


Figure 3: Layered Architecture of LCNC Platforms [14]

**Workflow Process in LCNC Platforms**

The generalized workflow of LCNC Platforms can be decomposed into six steps as:

- **Design and Layout Creation:** Users start by creating a layout in the visual development interface, adding UI elements such as buttons, forms, and images.
- **Workflow and Logic Setup:** Using the drag-and-drop workflow designer, users define the application logic by setting triggers (e.g., button clicks) and connecting actions to create a sequence of steps.
- **Data Integration:** The user links the application to external data sources or internal databases using data connectors or API integrations, enabling dynamic data flow.
- **Security Configuration:** Users configure security settings, setting up access controls and authentication requirements to protect the application.
- **Testing and Debugging:** The application is tested using automated tools provided by the platform, allowing users to troubleshoot and ensure smooth functionality.
- **Deployment:** Once finalized, the application is deployed to production, where it is accessible to end-users. The LCNC platform manages back-end deployment, ensuring that the application functions on the desired infrastructure without extensive setup[2].

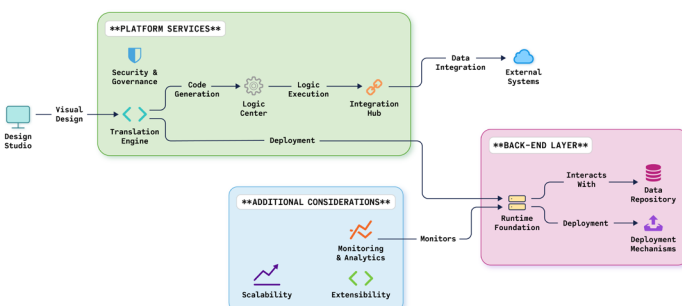


Figure 4: LCNC Architecture Flow [15]

**Analysis of LCNC Platform for Citizen Developers**

To strategically evaluate our idea of digital transformation using Low-Code/No-Code (LCNC) development platforms, it was essential to conduct a SWOT analysis. Digital transformation focuses on integrating digital technologies into all areas of business, fundamentally changing operations, and delivering enhanced value to customers. The SWOT analysis identifies both internal strengths and weaknesses, alongside external opportunities and threats. On the other hand, the analysis also identified potential challenges, including technical complexity in scaling applications, integration with legacy systems, and market acceptance issues, which are crucial considerations for the long-term success of our idea[16]. It can be presented below:



Figure 5: SWOT Analysis of LCNC for Citizen Developers [15]

**Key Challenges in Low-Code and No-Code Platforms**

While LCNC platforms offer significant benefits, they come with unique challenges. It can be listed as [16]:

- **Security and Compliance:** Non-technical users may unknowingly introduce security vulnerabilities due to a lack of coding experience.
- **Scalability and Customization:** No-code platforms, in particular, have limited customization options and may struggle to scale for complex projects.
- **Integration with Legacy Systems:** Integrating LCNC applications with existing legacy systems can be challenging due to compatibility issues.

**Recent Advancements and Research Trends in Low-Code and No-Code Platforms**

Ongoing research and advancements are enhancing the effectiveness of LCNC platforms and have resulted in the following opportunities and possibilities unlocked[17].

- **AI Powered Automation:** AI automates repetitive tasks like data validation and entry, reducing human error and increasing efficiency.
- **Machine Learning for Personalization:** Machine learning algorithms personalize development experiences, suggesting templates and components based on previous user actions and common industry trends.
- **Advanced Security Tools:** LCNC platforms now feature real-time compliance checks and data encryption, reducing security risks associated with applications built by non-experts.

**Challenges and Open Questions**

As LCNC platforms evolve, they present several opportunities and benefits for accessible application development. However, they also present several challenges and unresolved questions. We can elaborate on the major open questions and propose potential solutions as:

- **How can LCNC platforms customize more complex applications while retaining ease of use?**

**Possible Solution:** Hybrid Development Models integrating low-code capabilities with modular coding options, allowing advanced users to insert custom scripts while still offering visual tools for non-technical users. Example: Mendix

- **What additional measures can be introduced to ensure security and compliance for applications built by non-technical users?**

**Possible Solution:** Automated Security Checks implementing built-in security testing tools to scan and detect application vulnerabilities such as weak authentication, exposed APIs, backdoors of applications, etc during the lifecycle development. Example: OutSystems

- **How can LCNC platforms effectively integrate with emerging technologies like IoT and blockchain?**

**Possible Solution:** Standardized Integration APIs including standardized APIs and connector mechanisms to facilitate communication with IoT devices and blockchain networks. Example: AppSheet

## Conclusion

Low-Code and No-Code (LCNC) platforms are fundamentally reshaping the software development landscape by facilitating faster, more accessible, and democratized methodologies for application development. By enabling citizen developers to engage actively in digital transformation, these platforms foster collaboration, mitigate IT dependencies, and stimulate innovation throughout organizations. Despite their transformative potential, LCNC platforms face critical challenges, including security vulnerabilities, scalability limitations for complex enterprise applications, and integration difficulties with legacy systems and emerging technologies like IoT and Blockchain. Addressing these issues through structured governance, hybrid development models, and advancements such as AI-powered automation and compliance frameworks will be key to their sustained impact. As LCNC platforms continue to evolve, they are poised to remain an indispensable driver of business agility and technological innovation, bridging the gap between technical and non-technical users while paving the way for a more inclusive and efficient digital ecosystem.

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# Leveraging Gamification *for* Student Performance *in* Nepalese Higher Education Institutions

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## Introduction

Higher education systems across the globe are experiencing unprecedented transformation driven by rapid technological advancement [1], changing learner expectations [2], and intensified competition among institutions. Nepalese Higher Education Institutions (HEIs) are no exception. The traditional teacher-centric model, characterised by passive lectures, examination-driven assessment, and limited student engagement, has increasingly been criticised for its inability to foster deep learning, motivation, and employability-orientated competencies. In this context, gamification of education emerges not merely as a pedagogical tool but as a strategic managerial intervention capable of aligning learning processes with institutional performance goals.

Gamification is the use of game-design elements like points, badges, leaderboards, levels, challenges, and feedback mechanisms in non-game settings to affect behaviour and motivation [3]. Gamification has received increasing scholarly interest due to its ability to drive intrinsic motivation, engagement, and sustained participation (Hamari et al., 2014; Koivisto & Hamari, 2019). While much empirical research exists in worldwide contexts, particularly in education, healthcare, and business, there is still a significant empirical and conceptual void in Nepal's higher education sector.

Nepalese higher education institutions face structural problems such as limited digital infrastructure, uneven ICT preparedness, faculty reluctance to pedagogical change, and legislative ambiguity around technology-enabled learning. Despite these limitations, research in Nepal have found that ICT-based and gamified interventions improve health education, disaster preparedness, and early childhood education [4], [5], [6]. These data suggest that gamification has a significant potential for adoption in higher education if it is handled strategically.

This paper argues that gamification should be viewed as a strategic educational system incorporated within institutional management procedures, rather than as a standalone teaching tool. Drawing on established learning theories and empirical literature, the study provides a conceptual framework that explains how gamification improves academic performance via student motivation and self-efficacy, while taking into consideration crucial moderating circumstances pertinent to Nepalese higher education institutions. The framework provides practical insights for academic leaders, curriculum designers, and policymakers working to modernise Nepal's teaching-learning ecosystem.

## Evolution of Gamification and Its Relevance to Higher Education

Gamification has its roots in digital gaming culture from the late twentieth century, when breakthroughs in internet connectivity permitted worldwide leaderboards, social comparison, and real-time feedback [7]. These elements profoundly altered user involvement, transforming gaming from a solitary activity to a socially embedded motivational system. By the mid-2010s, gamification principles have spread to organisational contexts such as staff training, performance management, recruitment, and customer engagement [8].

The introduction of gamification into education addresses long-standing educational issues. Historically, educators have struggled to strike a balance between standardised curricular requirements and customised learning experiences [9]. Gamification provided a solution by incorporating motivation, feedback, and progression into structured learning environments. When properly built, gamified learning environments can improve enjoyment, persistence, time on task, and academic accomplishment [10], [11].

This evolution is especially important for Nepal's higher education institutions. The majority of present university students are from Generation Z, a group distinguished by digital fluency, a propensity for participatory learning, and a poor tolerance for passive instruction [12]. Traditional instructional approaches are increasingly failing to connect with these students. This mismatch jeopardises student satisfaction, retention, and institutional reputation. Gamification is thus a deliberate response to shifting learner demographics rather than a technology innovation.

## Gamification in the Nepalese Education Context

Gamified learning elements have long existed informally in Nepal's early education system, including play-based learning, rewards, and interactive teaching practices [5]. However, when students go through secondary and higher school, these methods fade away. Instruction becomes examination-oriented and content-heavy. This transition frequently results in decreased motivation, superficial learning, and disengagement.

Empirical studies in Nepal demonstrate that technology-mediated and gamified approaches can improve learning results. For instance, Kayastha et al. (2021) found that the MANTRA mobile gamified application dramatically increased women's health knowledge and decision-making behaviour. Similarly, Gyawali (2020) underlined the importance of interactive ICT-based educational approaches during the COVID-19 epidemic, arguing that participatory learning settings outperformed unidirectional delivery.

Despite these findings, gamification remains underutilised in Nepalese higher education institutions due to institutional inertia, insufficient faculty training, and a lack of strategic direction. Most projects are fragmented, instructor-led experiments rather than institutionally integrated plans. This highlights the need for a conceptual framework that ties gamification to learning outcomes and administrative decision-making in higher education institutions.

## Theoretical Foundations: Why Gamification Works

Gamification's success is supported by various well-established learning and motivation theories. According to Self-Determination Theory, intrinsic motivation occurs when people perceive autonomy, competence, and relatedness [13]. Gamified learning environments promote these circumstances by allowing students to set their own learning pace, gain mastery through progressive challenges, and connect socially through leaderboards and collaborative assignments [14].

Social Cognitive Theory explains how gamification improves learning by increasing self-efficacy, or an individual's conviction in their ability to complete tasks successfully [15]. Gamified systems offer quick feedback, incremental challenges, and visible progress indicators, all of which help to diminish fear of failure and encourage persistence.

From a management perspective, these ideas emphasise that gamification effects academic performance indirectly by altering psychological states rather than directly imparting knowledge. This concept is significant for higher education institutions because it pushes performance management away from content delivery and towards learning experience design.

## Mediating Mechanisms: Student Interest and Self-Efficacy

### Student Interest as a Mediator

Student interest is a situational psychological condition that focusses attention and energy on learning activities [16]. Simões et al. (2013) found that gamification promotes situational interest by changing learning activities into interesting challenges. Enhanced interest leads to increased study engagement, deeper cognitive processing, and better academic performance [18].

For HEI administrators, this indicates that investments in gamification produce benefits not only through entertainment, but also by rearranging attention economies within classes. Gamified courses can help students stay focused on complex theoretical subjects found in management, engineering, and scientific programs.

### Self-Efficacy as a Mediator

Self-efficacy is an important factor in determining students' motivation to complete challenging academic activities. Gamification promotes self-efficacy by dividing down content into digestible levels, allowing for repeated practice, and providing corrective feedback without punishment [19]. According to empirical data, self-efficacy serves as a mediator between instructional design and academic success [20].

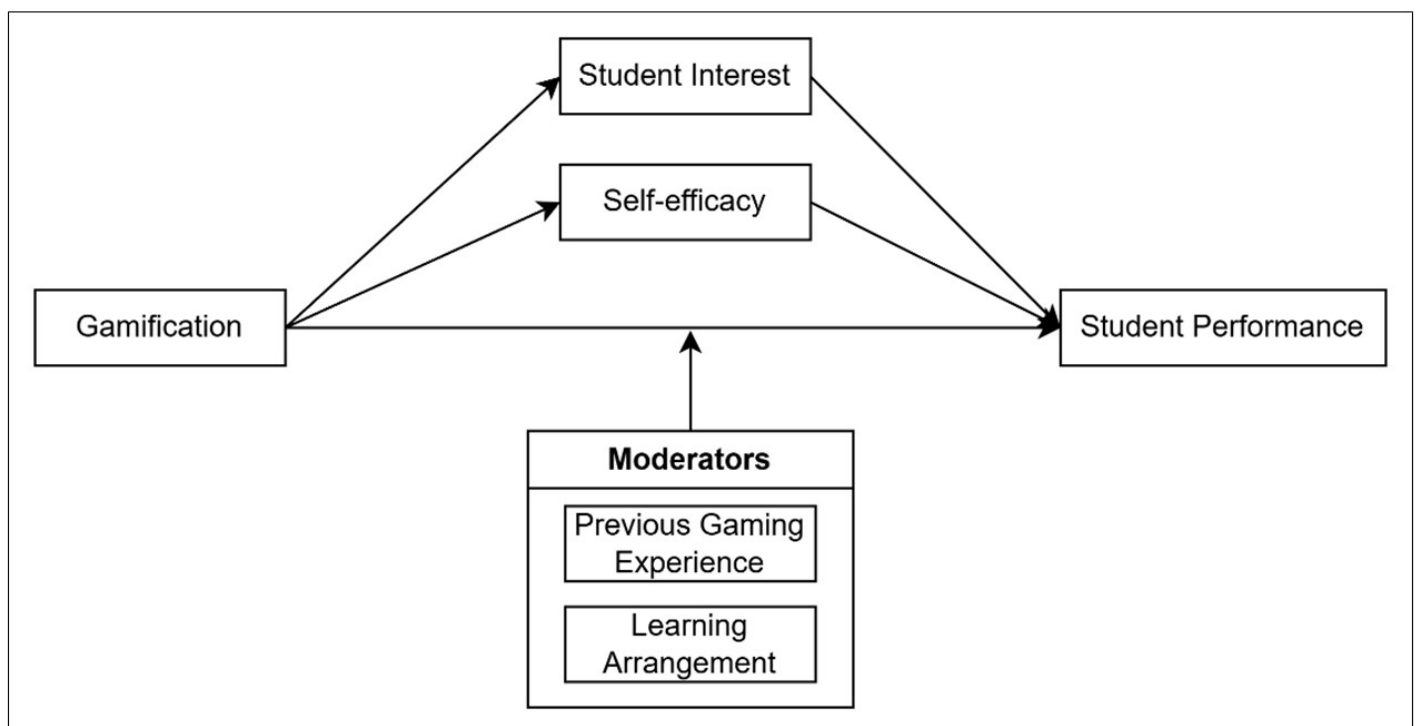
From an institutional standpoint, gamification acts as a risk-reduction technique for students, particularly first-generation university students in Nepal who may lack academic confidence. Improving self-efficacy is consistent with HEIs' overall equality and inclusion goals.

### Moderating Conditions Relevant to Nepalese HEIs

While gamification has promise, its effectiveness is contingent on contextual moderators that determine implementation outcomes.

The Lewinian experiential learning model, based on experiential learning theory, emphasises that the observations that people gain from their previous experiences act as a function of their attitude towards future learning processes [21]. Students with more previous gaming experience are expected to be more adept at gamification learning methodology, making them ideal subjects for the gamified learning experience [22].

Listening to lectures, watching instructional videos, and reading textbooks are examples of passive instructional arrangements. A learning environment that openly encourages students to participate in learning activities (such as assignments, exercises, and laboratory experiments) is referred to as active instructional arrangements [11]. A mix of passive and active teaching strategies is referred to as a mixed instructional approach. According to Landers (2014), the higher the engagement from the student side in the gamification process of education, the better the student performance (theory of gamified learning). The incorporation of a higher proportion of active instructional components creates a flipped-learning environment which would lead to higher participation of students in the learning process, increasing student performance.



Source: [18], [22].

**Figure 1:** A Gamification-Based Learning Framework for Student Performance

The framework positions gamification as a strategic instructional system, not a standalone tool, enabling HEIs to align pedagogical innovation with performance outcomes.

## Managerial Implications for Nepalese HEIs

For those guiding colleges and shaping education rules in Nepal, this idea offers real practical value. Not just something teachers try on their own, gamification works better when treated as part of a larger plan. Left unconnected, such efforts tend to fade fast, limited to single classrooms. So, it makes sense to weave game-like learning into wider shifts how courses are built, how teaching evolves, how tech reshapes campus life. When game-style teaching fits a school's core goals, its expected graduate skills, and how learning is measured, instruction stays in line with what the institution aims to achieve. Because of this connection, schools can set consistent standards, making sure students' educational journeys feel more uniform no matter which programme or department they are in.

Not every teacher feels ready when schools start adding game-like elements to lessons. Getting software is one thing; understanding how students learn best takes something more. Many educators in Nepal grew up with strict classroom routines, so shifting toward playful methods means rethinking old habits. Instead of quick training sessions, long-term support works better. Small groups sharing ideas help. So do regular chances to practise new approaches without pressure. When teachers get time and encouragement, they create activities that connect with what minds find engaging. Without such backing, games in class often become empty rewards with little real impact on education.

One more thing. Getting universities in Nepal to use game-like features means leaders have to question how tech resources are set up, especially when it comes to fair digital access. When classrooms start using point systems or progress bars, everything hinges on stable online platforms, phone-friendly tools, and ways to track learner behaviour. Since internet gaps still run deep across regions and income levels, planners can't just copy what wealthier countries do. Choices around technology need to favour growth without leaving students behind. Systems that work on slow connections matter. So does designing for phones first. Support teams within colleges play a big role too. All of this only works if school-level IT plans actually match broader government goals for digital schooling. Otherwise, new methods risk shutting people out instead of pulling them in.

Here comes a shift... Gamification brings fresh angles to how colleges track progress and maintain standards. Data flows in from game-like learning setups, showing patterns in effort, movement through courses, staying power, and results. Looking closely at this info helps departments and schools make choices backed by real examples. Leaders spot weak spots in course design, notice who might fall behind, judge how well teachers are doing, and shape upgrades over time. It acts like both a classroom helper and a back-end lever, pushing institutions to answer clearly to demands in today's crowded academic world.

## Conclusion

Starting fresh, turning play into learning makes sense for colleges in Nepal. Because students get more involved, they start believing in their own abilities, which lifts grades. This way of teaching fits how today's learners think and act. A clear model has been drawn up so schools can test it and leaders can decide wisely. When standing out matters in world education, playing to learn stops being just a choice; it becomes necessary.

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# Foreign Employment and Remittance

## Nepal's Economic Lifeline

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### Background

Foreign employment and remittance have become foundational pillars of Nepal's economy. Foreign employment refers to Nepali workers traveling abroad in search of jobs, primarily due to limited domestic employment opportunities, higher wage prospects, and the chance to gain new skills [1]. In the fiscal year 2024/25, a record 839,266 individuals received labor permits [2]. The majority of these workers migrate to Gulf countries, Malaysia, and other Asian nations.

The history of Nepali labor migration dates back to the early 19th century when Nepalese began joining foreign armies. A significant turning point came in 1950 with the Indo-Nepal Treaty of Peace and Friendship, which allowed recruitment into India's army, police, civil service, and private sector. The Foreign Employment Act of 1985 officially opened legal pathways for overseas jobs beyond India. This framework was strengthened by the Foreign Employment Act, 2007, which improved regulation and enhanced protection for migrant workers [3].

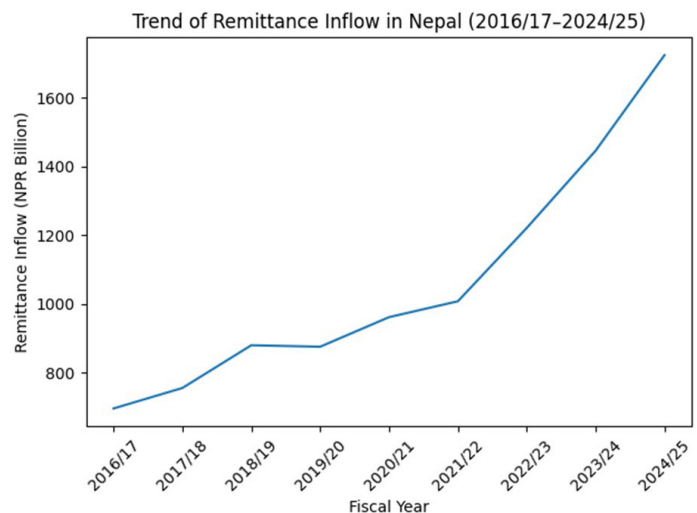
### Remittance Inflow and Foreign Employment Trend

Remittances—the money and goods sent back by migrant workers—play a crucial role in sustaining households and strengthening the economy. In the fiscal year 2024/25, remittance inflow reached a record NPR 1,723.27 billion, a 19.2% increase over the previous year [4]. These funds support daily consumption, education, healthcare, and housing, providing financial lifelines to families nationwide.

### Economic and Social Impact of Remittance

Remittance has emerged as one of the most powerful forces shaping Nepal's economy and society. For many households, money sent home from abroad supports daily expenses, school fees, healthcare, and improved housing. At the national level, remittance earnings have helped support foreign exchange reserves and sustain consumption when other economic sectors lag [6].

However, this heavy reliance also presents challenges. Much of the income is spent on consumption rather than productive investment. Ongoing dependence on foreign employment has raised concerns about family separation, labor shortages in local industries, and limited domestic job creation [7].



Data source: Nepal Rastra Bank (2024, 2025)

Figure 1: Trend of Remittance Inflow in Nepal (2016/17–2024/25)

Fiscal Year	Labor Permits Issued
2016/17	642,859
2017/18	612,685
2018/19	508,828
2019/20	368,433
2020/21	166,698
2021/22	628,503
2022/23	771,327
2023/24	741,297
2024/25	839,266

Data source: Department of Foreign Employment (2025).

**Table 2:** Foreign Employment Trend Based on Labor Permits Issued

## Social Consequences

The social consequences of labor migration are profound and multifaceted. One of the most significant effects is family separation. With hundreds of thousands of Nepali workers abroad, many families are left behind, often with one parent—typically the mother—assuming full responsibility for household duties. This separation can lead to emotional stress, disrupted childhood development, and weakened family cohesion [8].

Gender dynamics are also shifting due to migration. While men constitute the majority of labor migrants, the number of women seeking foreign employment is gradually increasing. Women migrants often face greater risks, including exploitation and abuse, particularly in domestic work sectors in the Gulf. However, remittances sent by women have been shown to be more likely used for education and healthcare, contributing to long-term family welfare [1].

The table below illustrates the trend in foreign employment based on labor permits issued:

Youth aspirations are increasingly shaped by the migration culture. Many young Nepalese view foreign employment as a rite of passage or the only viable path to economic mobility. This trend has led to a decline in interest in agriculture and vocational trades within Nepal, raising concerns about the sustainability of local industries and food security [9].

The rise of digital remittance channels has transformed how money is sent and received. Mobile banking, digital wallets, and fintech platforms have reduced transaction costs, increased speed, and improved transparency. According to Nepal Rastra Bank (2025), over 60% of remittances in 2025 were received through digital platforms, enhancing financial inclusion, especially in rural areas.

## Regional Insights

Comparative insights from South Asia reveal similar patterns. In Bangladesh, remittances accounted for 6.5% of GDP in 2024, with strong government support for digital remittance systems [9]. India, the largest recipient of remittances globally, has leveraged its diaspora networks and banking infrastructure to channel funds into productive investments. Sri Lanka, on the other hand, has faced challenges due to political instability and currency depreciation, which have affected remittance flows and migrant welfare [7].

These regional comparisons highlight the importance of robust policy frameworks, digital innovation, and migrant protection in maximizing the benefits of labor migration.

## Policy Recommendations

To ensure sustainable development, Nepal must focus on:

- Channeling remittance into productive sectors through financial literacy programs.
- Encouraging savings, investments, and diaspora engagement in local enterprises.
- Strengthening vocational training to enhance employability domestically and abroad [1].

Moreover, protecting migrant workers' rights through bilateral agreements and legal support mechanisms is essential. The government should also invest in domestic job creation by supporting small and medium enterprises, infrastructure development, and innovation-driven industries [6].

## Conclusion

Foreign employment and remittance play a decisive role in Nepal's economic survival and social transformation. From 2016 to 2025, remittance inflows and labor migration trends show a strong positive relationship. Despite the disruption caused by the COVID-19 pandemic, the sector demonstrated resilience and recovered rapidly. While remittance has significantly contributed to poverty reduction and macroeconomic stability, Nepal's heavy reliance on foreign employment highlights structural weaknesses in domestic job creation. Moving forward, reducing excessive dependence on foreign labor markets while maximizing the developmental benefits of remittance is essential for Nepal's long-term economic stability.

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# From Hashtags to the Streets

## *Social Media's Role in Youth Civic Mobilization in Nepal*

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### Introduction

According to DataReportal's findings, there were 14.3m active social media user identities in Nepal in January 2025. Generation Z, those born between 1997 and 2012, also stand at the front of the digital wave, shaping online interactions and trends. GenZ engagement with social media shows diverse and critical ways in which individuals navigate the digital landscape [1]. While some use it for staying updated on current affairs, others use it for learning, self-expression, and entertainment, reflecting the multifaceted nature of this generation's online presence. Born into a world of constant change, their voice reflects shifts in various sectors, including education, health, politics, and others.

Similarly, in the present day, where decisions are increasingly shaped by digitalization, social media also plays a crucial role in transforming communication. It influences how people interact, share information, and engage with the world around them [2]. An 'American Academy of Pediatrics' study finds that social media can be a space to discover new ideas and knowledge. With this, it is also a way for youth to engage in activism, along with gaining the experience to connect with an online community.

In 2025, the world witnessed youth rising against the stagnant system of the nation. youth's hope for a better future and their agenda against corruption, unemployment, and the urge to establish a system with good governance were pivotal. Generation Z uprisings unfolded in Nepal, with youth unemployment exceeding 20 percent and nearly one-third of gross domestic product derived from remittances, the economy reflected chronic failure. [3].

The World Bank estimated that youth unemployment has reached above 20%, and over 65,000 Nepali youths leave the country seeking jobs abroad. In the 2024 'Corruption Perceptions Index', Nepal scored 34 out of 100, indicating a high level of public sector corruption [4]. GenZ and younger groups spend more time on Instagram, TikTok, and other social apps than older generations. They grew up interacting with social trends, which also shaped how they learn and interact. Youth engage with reels, influencer content, gaming, and sports, with trends on new media like X, TikTok, Instagram, and Facebook. Thus, this study analyses the impact of new media and its influence on social issues among youth, from decision-making to participation in a revolutionary moment in the country.

### Youth Protest and Digital Uprising

In September 2025, frustration erupted among youth when the "nepo babies" trend started targeting the privileged group of politicians' children. The tension escalated when the government banned various social media platforms, which was attributed to the platforms failure to meet the new registration guidelines. The two-day protests were marked by violence, vandalism, and arson. Government buildings, police stations, and private homes of politicians across the country were set alight; there were prison riots and lootings; and security personnel were overrun by angry mobs, forcing them to run for cover.

The youth-led protest shows a shift from traditional media to social media platforms. The traditional media, including television, newspapers, and radio, reported the aftermath of the protest. On the other hand, online sites, Facebook, Instagram, and TikTok, circulated the information online. On September 8, for a detailed description of the protest, Sudan Gurung, a youth activist, provided details online about the protest, which informed young people to join. This shows the strategic power of social media sites, as visibility can be gained easily, whereas it has become a primary tool for amplifying young voices in contemporary society. Various digital platforms such as Facebook, Instagram, TikTok, and X formerly Twitter were extensively used to disseminate news related to protest schedules, locations, and objectives. Through posts, videos, and hashtags, updates were circulated rapidly, enabling thousands of young people to remain informed and engaged. This swift flow of information contributed to the large-scale mobilisation of youth across different parts of the country. Visual content such as photographs and videos from protest sites attracted national as well as international attention, strengthening the impact of the movement and ensuring that youth concerns were widely noticed.

Social media also served as a platform for raising public awareness. Many young activists used digital spaces to clearly articulate their demands and explain the reasons behind the protests. This helped the general public understand the movement better and encouraged peaceful dialogue. It further helped to connect citizens with common ideologies about the question of how their tax money is being used. It showed the situation of different parts of the country, which were underdeveloped, and became a powerful tool to expose cronyism across sectors, preventing people from showing their real talent amid the trend of ever-increasing favouritism.

Cyabra, a cyber intelligence company based in Tel Aviv, Israel, report titled 'Key Findings from Nepal's 2025 Protests,' analyzed the online surrounding Nepal's youth uprising. The report notes that young people used their digital platforms to mobilize new media and build identities. Furthermore, it explores how social media heated up both before and after the street demonstrations. Social media became not just a tool for sharing information but a battleground for shaping opinions, influencing public sentiment, and distorting facts. The space for youth was a virtual war zone, where messages highlighted the failure of a government to address citizens' demands [5].

### Wave of Misinformation During Protest

According to a report by the Center for Media Research Nepal titled 'Misinformation during the youth Uprising in Nepal: Trends and Lessons Learned for Interventions,' there was a series of misinformation on sensitive topics: demonstrators chanting pro-India slogans, foreign governments, and the protest being pro-monarchy.

The impacts of misinformation effected on how the public should react to the panic situation and misinformation. The deep circulation of fake news and photos created fear and anxiety as there was also confusion on citizen about what was happening, and questions regarding trustworthy sources were raised [6]. This situation highlights the need for fact-checking, as false claims about certain news and fabricated stories had the possibility to escalate tensions. For example, India's Aaj Tak claimed an unverified report that former Prime Minister KP Sharma Oli was fleeing to Dubai to escape the chaotic situation. Later, the Himalaya Airlines publicly denied the report, clarifying that no such flight took place [7]. Thus, fact-checking plays a critical role in providing unbiased, accurate analysis of public statements to restore public confusion and increase understanding of sensitive issues. youth civic mobilization showed the essential part to check the information, which is circulated on online sites.

### Conclusion

Youth integrated social media into a space where digital activism can play a central role in shaping narratives, along with how digitalization in the present era helps people to be connected. It helped to bring new ideologies regarding politics among the youth regarding reform and change in the nation. Amidst the protest and discord, a US-based social media platform became a vital tool in sharing perspectives among youth across the nation. In September, most of the conversation took place on the Discord channel, which became an essential tool for youth to debate on political scenario of the country.

Thus, social media is used as a strong weapon in the 21st century, where people with common thoughts can be connected, and it helps to bring transformation in this world where opinion is shaped by the internet. It helped to change the existing unchangeable and unfavourable government system through the connection of a common voice, and the call of youth was for good governance in the nation. On the contrary, social media has widespread use, which negatively circulates misinformation among the masses of people creating an environment of fear, anxiety, and false claims among the people. Overall, youth led protests in Nepal have shown the dominant power of new media technology in a world where the internet can frame new opinions about politics.

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# KIST FAIR 2082

*Fostering Talent*

## SCIENCE • IT • MANAGEMENT

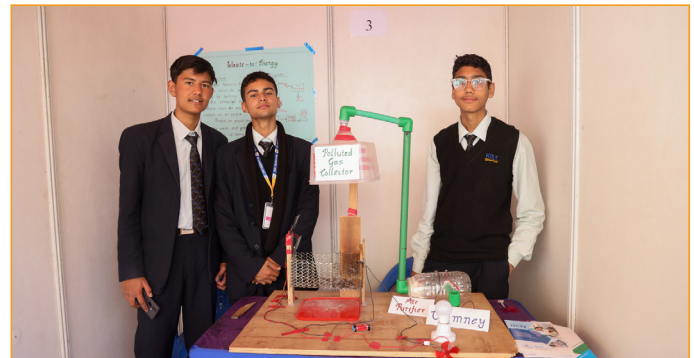
Friday 23 Magh 2082 (6 February 2026), Kathmandu

### Youthful Creativity

We welcome one and all to our well-regarded, eye-opening *Interschool Art & Craft Competition* at KIST College, Kathmandu, on Friday, February 6, 2026!

Our purpose has been to encourage very young artists to find a platform downtown to put on show their talent through diverse artistic exhibits. Pupils from an array of schools – private, governmental, or charitable – across the Valley take part. Recognition aplenty!

Fascinatingly engaging, this inter-institutional annual event, veritably a cornucopia of creative endeavor, is invariably a glorious experience for all of us.



As customary, the KIST Fair 2081 – a delightful flurry of activities – held on 25 Magh was a cherished event attended by the best in the educational field. Significantly, the Inter-College SciTech Competition, Inter-College Management & IT Project Competition and Interschool Art & Craft Competition had keen participants from Kathmandu's finest schools and colleges. Notably, the Imagineering Competition was a resounding success with all the pragmatic creativity exhibited.

Similarly, this Fair – incorporating the soft-power of blended learning – on Friday, 23 Magh 2082, should be another special infotainment festival for youngsters & promising professionals with scholastic enthusiasm & innovative skills.

*Welcome one & all!*



## Events

- Inter-School/College Science & Technology Competition
- Inter-College Management & IT Project Competition
- Interschool Art & Craft Competition
- Intra-College Science & Technology Competition
- Intra-College IT Project Competition
- Intra-College Management Project Competition
- Intra-College Imagineering Competition
- KIST FIFA Competition

