

Report On
Project management: Designing a cloud-based project management
system for The Ayat Foundation

By
Akello Lydia
21304115

An internship report submitted to the BRAC Business School in
partial fulfillment of the requirements for the degree of Bachelors of
Business Administration

BRAC Business School
BRAC University
October 2025

1. Declaration

It is here by declared that,

- 1) I confirm that this internship report is the result of my own original work, completed as part of my degree at Brac University.
- 2) This report does not include any content that has been previously published or written by others, unless properly cited with complete and accurate references.
- 3) No part of this report has been submitted for the award of any other degree or diploma at any university or institution.
- 4) All significant sources of assistance and support have been acknowledged.

Student's Full Name & Signature:

Akello Lydia (21304115)

Student Full Name Student ID

2. Letter of transmittal

Ms. Noushin Laila Ansari

Lecturer

BRAC Business School (BBS)

BRAC University

Kha 224, Bir Uttam Rafiqul Islam Ave, Dhaka 1212

Subject: Submission of Internship Report

Dear Ma'am,

I am pleased to submit my internship report titled "Design a cloud-based project management system to coordinate activities between the South Asian and European employees." Which has been prepared as a requirement for the completion of my undergraduate program at BRAC University.

In this report, I provide a description of my experience as an intern, which includes a description of what I achieved within the internship in terms of the insights, skills, and knowledge I gained during the internship. In case you need some further input or explanation, you are free to communicate with me via e-mail akello.lydia@g.bracu.ac.bd

I sincerely appreciate your continuous guidance and support throughout this internship journey. The experience has been truly enriching, and I am confident that the learnings will significantly contribute to my academic and professional growth.

Sincerely,

Akello Lydia (21304115)

BRAC Business School

BRAC University

10/10/2025

3. Non-disclosure agreement

[This page contains the Non-Disclosure Agreement between the organization and the student]

This agreement is prepared and mutually signed by, The Ayat Foundation and Akello Lydia student of Brac University, who commits to maintaining strict confidentiality of all information shared during the internship.

The Ayat Foundation

Akello Lydia

4. Acknowledgement

I would like to first express my profound gratitude to the Almighty God for giving me the strength, wisdom, and perseverance to complete this academic journey. The knowledge that He is always beside me has remained my source of comfort and strength during this period.

I am deeply grateful to The Ayat Foundation for giving me this opportunity to be an intern at the organization. I would like to extend my real gratitude to Ms. Eesha Zainab and the team working at The Ayat Foundation for all their time, support, mentorship, and guidance. This internship has been an enriching experience that has contributed significantly to my professional growth and deepened my understanding of the NGO sector.

I would like to extend my heartfelt thanks to Ms. Noushin Laila Ansari, my academic my supervisor and Sir Raad Ryasaat Khan my co-supervisor at BRAC University, for her insightful feedback, academic support, and thoughtful guidance throughout this journey. Her commitment and encouragement have greatly contributed to the quality and depth of this report.

Finally, I am deeply indebted to my close friends and immediate family for their continued love, encouragement, and belief in me. Their unwavering support throughout this learning process has been a pillar of strength.

5. Executive Summary

This project paper presents the study and the developed solution for improving the operational efficiency of The Ayat Foundation, a transnational NGO operating between South Asia and Central Europe. In this regard, communication, coordination, and collaboration among teams remain extremely challenging due to geographical dispersion, cultural and technological differences, and time zones. This study employed a mixed-methods research methodology that coupled quantitative surveys with qualitative interviews to outline the core operational pain points: a lack of schedule visibility, lack of real-time communication tools, version control, and users with different digital literacy.

Therefore, this paper proposes the design of a scalable, secure, and user-centric cloud-based project management system that shall meet the unique needs of the foundation. The key features focused on include a shared calendar, real-time chat and video conferencing, document manage files with version control and track issues with advanced Encryption with Role-Based access controls. Advanced AI capabilities include multilingual translation and sentiment to facilitate cross-cultural collaboration; analysis has also been incorporated.

The solution will recommend Microsoft Azure cloud infrastructure with nonprofit programs, including flexible support, compliance with data protection laws, and cultural adaptations, changes in cost management strategies for its sustainability This should bridge the operational gaps in workflows, foster inclusivity, and empower The Ayat Foundation to function cohesively as an efficient international entity and ultimately enhance its impact in marginalized communities within South Asia and its services in Central Europe.

6. Table of Contents

1.	DECLARATION	I
2.	LETTER OF TRANSMITTAL	III
3.	NON-DISCLOSURE AGREEMENT	IV
4.	ACKNOWLEDGEMENT	V
5.	EXECUTIVE SUMMARY	VI
7.	LIST OF TABLES	IX
8.	LIST OF FIGURES	X
9.	LIST OF ACRONYMS	XI
10.	CHAPTER 1: INTERNSHIP OVERVIEW:.....	2
10.1	STUDENT INFORMATION.....	2
10.1.2	<i>Details of the internship</i>	2
10.2	JOB SCOPE.....	2
10.2.2	<i>Student contribution to the company</i>	3
11.	CHAPTER 2: ORGANIZATION OVERVIEW	5
11.1	COMPANY BACKGROUND	5
11.1.2	<i>Vision</i>	5
11.1.3	<i>Mission</i>	5
11.2	ORGANIZATIONAL STRUCTURE.....	6
11.3	MANAGEMENT PRACTICES	6
11.3.2	<i>Training and Development Initiatives</i>	6
11.4	MARKETING STRATEGY	7
11.5	OPERATIONS MANAGEMENT AND INFORMATION SYSTEM PRACTICES	7
11.6	FINANCIAL PERFORMANCE AND ACCOUNTING PRACTICES.....	7
11.7	SWOT ANALYSIS.....	7
11.7.2	<i>Summary.</i>	9
12.	CHAPTER 3: DESIGN A CLOUD-BASED PROJECT MANAGEMENT SYSTEM TO COORDINATE ACTIVITIES BETWEEN THE SOUTH ASIAN AND EUROPEAN EMPLOYEES.	10
12.1	INTRODUCTION.	10
12.1.2	<i>Problem.</i>	10
12.2	LITERATURE REVIEW.....	11
12.3	METHODOLOGY	13
12.3.2	<i>Research approach</i>	13
12.4	SYSTEM DESIGN PROCESS.	25
12.4.2	<i>Scope.</i>	26
12.5	REQUIREMENT ANALYSIS	27
12.5.2	<i>Gathering of Detailed Functional and Non-Functional Requirements</i>	27
12.6	SYSTEM DESIGN.....	29
12.6.2	<i>User Roles, Access Permissions</i>	29
12.7	SYSTEM FEATURES.....	30
12.7.2	<i>Summary of system features.</i>	38
13.	RECOMMENDATIONS.	41

13.1	SERVICE PROVIDER.	41
13.1.2	<i>Cost-benefit analysis.</i>	41
14.	CONCLUSION.	46
14.1	LIMITATIONS.	46
14.1.2	<i>Implementation Plan</i>	46
15.	REFERENCES.	48
15.1	APPENDENCES.....	50

7. List of tables

Table 1: SWOT analysis

Table 2: Summary of current challenges

Table 3: Summary of desired system features

Table 4: Summary of security and support expectations

Table 5: Tools usage and training.

Table 6: Summary of system features.

Table 7: Cost-benefit analysis

Table 8: Implementation plan

Table 9: Training methods

8. List of figures

Figure 1: Current coordination challenges

Figure 2: Desired features

Figure 3: Data protection concerns

Figure 4: How important is encryption and user access control

Figure 5: Desired support availability

Figure 6: Current tools

Figure 7: Experience level with coordination tools

Figure 8: Satisfaction level with current tools among different roles.

Figure 9: Desired goal from the system

9. List of acronyms

NGOs - Non-Government Organizations

GDPR - General Data Protection Regulation

CEO - Chief Executive Officer

CSR - Cooperate Social Responsibility

RBAC - Role Based Access Control

API - Application Programming Interface

AES-256 - Advanced Encryption Standard(256-bit)

AI - Artificial Intelligence

MFA - Multi-factor Authentication

SSO - Single Sign On

PWA - Progressive Web App

UX - User Experience

AWS- Amazon Web Services

GCP- Google Cloud Platform

10. Chapter 1: Internship overview:

10.1 Student information

ID: 21304115

Name: Akello Lydia

Course: Business Administration

Management Information Systems (MIS) major.

Operations and supply chain management- minor

10.1.2 Details of the internship

Time Frame: Two Months (06/15/2025 to 08/15/2025)

Company name: The Ayat Foundation

Division/Department: Mental Health Department

Address: Lahore, Pakistan

10.1.3 Information about the Company Supervisor (Name and Details):

Eesha Zainab

Director/CEO

10.2 Job scope

The internship involved a range of assignments across various fields in psychology. First, I have attended the 7 Cups training program, which means that I am now a certified listener and have learned active listening and empathy skills that are necessary to provide substantial emotional support. I then used the concepts of social psychology to question the dynamics of social support during disaster recovery situations to deepen my understanding of collective resilience. I also helped to build a framework of resilience in dealing with middle-childhood bullying in developmental psychology by incorporating adaptive resilience strategies and coping mechanisms to empower children who are victims. In trauma psychology, I carried out an exegetical analysis of case histories of childhood physical abuse, symptom progression and maintenance, and worked out an intervention plan full of empirically measurable therapeutic interventions and rigorous ethical examination. In addition, I provided clinical psychology interviews with people who had undergone psychological conditions, made preliminary diagnosis and explored the real life experience of schizophrenia by using qualitative information collected through oral history projects. All these activities cumulatively increased my practiced psychological knowledge and enhanced my research skills in real-life situations.

10.2.2 Student contribution to the company

During the internship, I did contribute greatly to the strength of the company by transforming theoretical constructs into practical practice of psychology. The 7Cups certification and corresponding validation as a listener added to the skills that the organization had to offer sensitive and effective emotional support to its clients. Developmental and social psychology were applied to create resilience-based resources, including a detailed middle-childhood bullying mitigation strategy that can become one of the useful resources in the program portfolio of the company. Additionally, trauma cases analysis and development of intervention strategies improved the clinical practice of the company, and the qualitative analysis of the lived experiences of schizophrenia in combination with clinical interviewing contributed to the organizational understanding of the needs of the clients, which facilitated the development of expertise-focused practice. Overall, my multidisciplinary work in various aspects of the company played a significant role in facilitating service delivery of the company and research life.

10.2.3 Benefits to the student

The internship was of great professional and academic value and it helped in the integration of theoretical models and practical applications in the normal environments. Participation in a range of activities, including the tested practice of a listener, as well as the examination of clinical cases, helped me to develop the skills of active listening, diagnostic analysis, and planning interventions. My critical-thinking and ethical decision-making skills were developed by exposure to intricate psychological cases including child trauma and schizophrenia. Also, by examining the social support mechanisms and resilience pathways, my research and program me-development skills were enhanced, thus equipping me with future professional activities in the field of mental health and psychology. The internship, therefore, fostered my development as an informed, reflective, and ethically-based practitioner.

10.2.4 Challenges faced during internship

During the internship, there were a number of challenges which negatively impacted the learning process and deliverables. It is noteworthy that administrative communication was fragmented, which led to the slow flow of the necessary information and the inability to coordinate in time. The lack of feedback on the tasks assigned promptly hampered the possibility of timely iterative development. In addition, the lack of well-defined working hours and responsibilities created confusion about expectations and duties, thus hindering the preservation of an organized workflow and the overall involvement in internship projects. As a business-student, the heavy emphasis on psychological orientation as opposed to business theory was inconsistent with my educational preparation and limited the ability to do interdisciplinary research and apply business theory practically, therefore, restricting compatibility with my professional goals.

10.2.5 Recommendations to the company.

The organization ought to create clear and effective lines of communication between administrators and interns to alleviate the problems experienced. The implementation of frequent check-ins and formal feedback meetings would help to provide timely guidance and support to interns and thus allow them to keep improving their performance. By establishing specific working hours, roles and responsibilities at the beginning of the internship, time-management would improve, as well as the expectations, which would lead to better engagement and productivity. Also, an interdisciplinary approach, including tasks that demonstrate various academic fields, i.e., business-related tasks in the case of business studies interns, would make the internship more relevant and expand the scope of the company operations and innovational possibilities.

The problems of ineffective communication, lack of feedback, vague schedules and lack of role allocation identified the gap in the organizational management processes. Such shortcomings highlight the necessity of an efficient system that can support the real-time flow of information, the ability to track tasks, see schedules, and define roles. Therefore, the idea to create a cloud-based project management system is expected to increase administrative efficiency and facilitate collaborative working processes. The proposed digital platform would offer a systematic space to enhance the communication, task management and eventually curb the causes of failure in organizations.

Being a business intern in an entity operating in the field of mental, educational, and social well-being and being mostly involved in projects related to psychological development, I noticed that the lack of digital coordination hindered the overall operational efficiency. As I realized this as an important opportunity, I used my knowledge on MIS to champion the design of cloud-based project management system, which meets the operational needs of the organization.

11. Chapter 2: Organization Overview

11.1 Company Background

Ayat Foundation is committed to the empowerment and well-being of the region by means of accessible education, advocacy of mental health inclusiveness, and professional development transformation. It participates actively in the marginalized communities in areas like Gilgit Baltistan, Khyber Pakhtunkhwa, and underserved groups like the Afghan refugees and victims of floods. The foundation has managed to partner with more than a hundred students, and over thirty volunteers and aims at closing the resource gaps and promoting social inclusion by means of education and effective programs.

11.1.2 Vision

The vision of the foundation is to have a world where all people, irrespective of their backgrounds, have the means, resources and a chance to achieve their full potential.

11.1.3 Mission

To promote local empowerment and well-being by providing accessible education and inclusive mental-health advocacy and transformative professional development.

11.1.4 Objectives

- ❖ Promote civil participation and social and cultural consciousness.
- ❖ Educate and offer mental-health services to the marginalized groups.
- ❖ Fill the resource gap in the needy areas such as the flood affected and refugee populations.
- ❖ Break boundaries by promoting inclusiveness and establishing equity by education and cross-cultural communication.

11.1.5 Departments of the Company

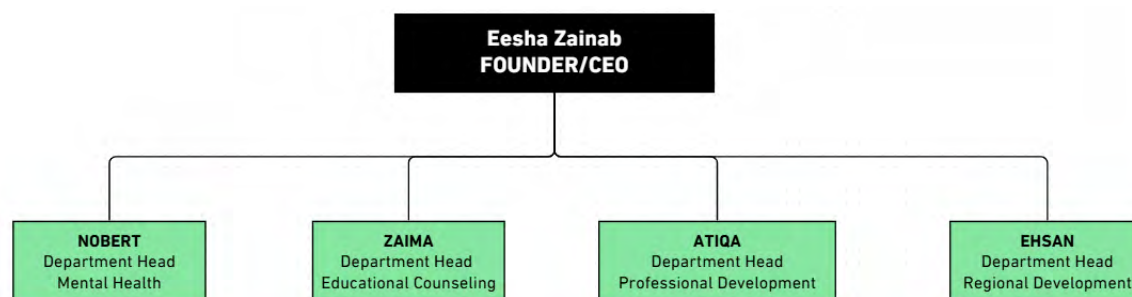
Educational Counseling: Provides advice and assistance to the students, helping them to find their paths in education, make wise choices, and deal with academic obstacles.

Mental Health: Focuses on mental-health advocacy, support, and awareness and offers counseling and resources to improve psychological well-being in the community.

Professional Development: Promotes professional skills development, mentorship and training programs to enable people through significant projects and career growth opportunities.

Regional Development (Gilgit Baltistan and Khyber Pakhtunkhwa): Its activities are based on community empowerment and bridging resources in these particular regions, targeting the local needs of the population, including education, socio-cultural awareness and the need of marginalized communities such as refugees and people affected by the floods.

11.2 Organizational structure



11.3 Management Practices

Leadership style

The leadership is mentorship and guidance based, where the department heads and industry experts assist in skill development and empowering the teams by offering real-life projects to them. The culture focuses on respect, professionalism, proactive communication, ownership, responsibility, diversity and inclusion.

Human Resource Planning

Human resource planning is concerned with the recruitment of volunteers and students who are in line with the mission of the foundation. The company has well-organized communication channels, including WhatsApp, Email, Google Workspace, among others, to coordinate the activities.

Scheme of Compensation:

No specific monetary compensation plan cited; probably on a volunteer basis and mentorship and not in paid positions.

11.3.2 Training and Development Initiatives

Guidance of departmental heads and industry professionals: Senior leaders and professionals can guide and advise individuals personally with their guidance, advice, and support, enabling them to develop their capabilities and work around the challenges.

Development of skills within meaningful and actual social projects: The participants can develop their practical skills and practical experience and improve their abilities in an objective environment through the involvement in social projects, which reflect the real needs of the community.

Community-based empowerment based on inspiring change: The organization empowers individuals by involving them in activities that lead to social impact and motivating them to do good to their communities, which leads to change that is sustainable.

Performance Appraisal System. The performance appraisal is done through weekly meetings with feedback systems through direct messages and through email whereby constant improvement and responsibility are encouraged.

11.4 Marketing Strategy

The organization is also concerned with social impact marketing since the foundation emphasizes its promotion of education, mental health, and regional development. The plan involves the establishment of credibility of the community by undertaking community projects and fostering inclusiveness.

Targeting, Positioning Strategy.

Target Market: Marginalized and underprivileged communities, including students, volunteers, Afghan refugees and flood-affected communities in Gilgit Baltistan, Khyber Pakhtunkhwa, and so on.

Positioning: A social transformative base that is centered on empowerment, education, cultural conversation, and mental health advocacy.

Marketing Channels

- Social media, through Instagram;
- Community outreach, by way of donation campaigns and education projects;
- Engagement with local stakeholders, by networking and mentorship programs.

11.5 Operations Management and Information System Practices

The operations are coordinated through organized communication platforms such as WhatsApp, Email, and Google Workspace, while the meetings will be held on a regular weekly basis to ensure coordination and feedback. Active communication, responsibility, and diversification are the focus of the workflow.

11.6 Financial Performance and Accounting Practices

Financial performance and accounting activities were not clearly provided because the emphasis was the volunteers and the social projects use donation drives for financial management, whereby the resources put together are dispersed to community-based projects.

11.7 SWOT Analysis

Strengths

Deep regional orientation: The foundation targets the marginalized populations in Gilgit Baltistan, Khyber Pakhtunkhwa and amongst refugee/ flood-affected populations to tailor to the urgency of the need in the locality.

Wholesome program combination: The combination of education, mental health advocacy, professional development, and regional development comprise a holistic strategy of community service.

Empowerment covering aspects of social well-being. Strong volunteer base: over 100 students and more than 30 volunteers are involved in offering these services. Dynamic human resource base, which makes it easy to reach a wide spectrum of the population and skills.

Dedication to empowerment: With a purposeful project and community-oriented activities, the foundation builds ownership and practical results, which build beneficiary confidence and long-term involvement.

Weaknesses

Volunteer dependency: The absence of official financial reward can influence the motivation and retention of the volunteers, which will put the uniformity of performance at risk.

Administrative issues: Lack of definition of roles and communication issues may minimize the effectiveness of operations and delay the decision-making process.

Skills and technology divide: The lack of integration between business and technical functionality can hamper strategic innovation and, furthermore, the lack of digital literacy will make the use of advanced tools more difficult.

Threats

Political and bureaucratic instability: The political climate in Pakistan may interfere with the NGO operations, slow down the funding payments, and create regulatory ambiguities.

Competitive fundraising climate: NGOs have many competing groups that fight over limited donor funds make it difficult to obtain sustainable funding. Data and Security risks: Working with sensitive beneficiary information.

Data and security risks: The process of working with sensitive beneficiary data is associated with privacy and cybersecurity threats, which demand sound compliance systems.

Problems with cultural diversity: Linguistic and cultural diversity can lead to misunderstandings or even ostracism unless addressed properly.

Economic unpredictability: Economic recessions may lead to a decline in generosity of donors and jeopardize the sustainability of the program.

Opportunities

Expanding funding interest: Increased attention to inclusive education, mental health, and social justice in the global and regional levels provides more funding opportunities both by governments, foundations, and international donors.

Digital transformation: The growth of cloud-based technology and digital collaboration platforms designed to meet the needs of NGOs can increase the efficiency of work and collaboration in the international environment.

Donor interest and networks: Increased donor interest and NGO networks avail avenues to mobilization of resources, collaborations and visibility.

SDGs alignment: The alignment of the frameworks facilitated by the United Nations Sustainable Development Goals will draw in the support and provide the basis of program legitimacy.

Greater social activism: Greater social awareness and civil society activism in Pakistan enhances advocacy and involvement by the community.

11.7.2 Summary.

Table 1.

Category	Key points
Strengths	Focused regional work; diverse programs; engaged volunteers; empowerment-centered
Weaknesses	Growing funding focus; digital tools; donor networks; SDG alignment; rising social activism.
Opportunities	Growing funding focus; digital tools; donor networks; SDG alignment; rising social activism.
Threats	Political instability; tight donor competition; data security risks; cultural barriers; economic swings.

12. Chapter 3: Design a cloud-based project management system to coordinate activities between the South Asian and European employees.

12.1 Introduction.

NGOs play a significant role in the resolution of social, economic, and environmental problems globally. They do face major operational challenges that hinder their ability to better execute projects, coordinate across borders, and maximize their impact. Challenges like these arise mainly due to funding constraints, bureaucratic administrative set-ups, and an overall lack of the resources that would be needed to develop good communications and coordination. In NGOs whose operations span wide geographic and cultural areas, disparities in technology and diverse work practices become additional hurdles. These inefficiencies manifest as delayed decision-making, fragmented task management, and difficulties in program and event planning, which negatively impact organizational effectiveness.

This project focuses on the Ayat Foundation, based in Lahore, Pakistan, which is purely virtual in operation and faces most of these challenges in conducting its operations. Communication and coordination among departments and employees were common during my internship spread across Pakistan and Central Europe, a fact made difficult by the absence of user-friendly integrated tools. The lack of these tools negatively impacted major processes such as program coordination, feedback management, and exchanging live information. To comprehensively understand these issues, a questionnaire was used to evaluate the current operation tools, measure workers' proficiency with these tools, and discern priority needs for a digital solution.

Addressing these issues, a cloud-based project management tool is proposed. It enables centralization of resources, automation of routine tasks, and seamless real-time communication, all of which facilitate scalable and cost-effective operations. By adopting a cloud-based platform fit for the organization's specific environment, Ayat Foundation can overcome technology, cultural, and geographical barriers. In addition, better collaboration of European and South Asian teams will also lead to increased efficiency in project implementation.

12.1.2 Problem.

Most of the South Asian NGOs trying to establish an international presence face operational hurdles with respect to technology, culture, and geography. These differences pose obstacles to effective communication and coordination among South Asian and European workers, along with disparate access to digital tools, varying digital literacy, and cultural differences in work style and language. Time zone discrepancies also have severe implications on real-time collaborations, resulting in fragmented workflows and decisions. Without a Central system of

task coordination and resource allocation, these inefficiencies impede coordinated program organization and feedback management. The implementation of a cloud-based project management system will be required to bridge these gaps and enable collaboration while driving operational efficiency across regions.

12.1.3 Objective

The subsequent objectives guide this project in systematically addressing operational challenges at The Ayat Foundation to an effective solution. They focus on finding out about the current workflow constraints, designing the suitable technology platform, and key features for improvement in collaboration between European and South Asian teams. These objectives ensure that the proposed cloud-based system is relevant and thus effective in organizational international operations. To identify and document core challenges in current operational workflows.

- To design a secure, scalable cloud-based system tailored to South Asian European needs.
- To identify and document features to be prioritized to enhance cross-continent collaboration for The Ayat Foundation.

12.1.4 Research questions.

- What are the key operational challenges faced by the Ayat Foundation in building an international presence in Central Europe?
- How can a cloud-based project management system resolve coordination issues across geographically distributed employees?
- What features must be prioritized to enhance cross-continent collaboration for the Ayat Foundation?

12.2 Literature review.

Operational challenges in NGOs

NGOs face an advanced set of operational issues that considerably influence their effectiveness and sustainability. Among these challenges, the primary is fiscal constraints that significantly restrict the capability of NGOs to initiate or expand initiatives, thus preventing the realization of organizational goals and hindering the sustainability of projects as illustrated in recent works TapacoBa (2023), Moaz and Awny (2024). Poor governance, especially vague definitions of volunteer roles and duties contribute to inefficiencies and mismanagement, as noted in the original research by Rocha, 2013. Besides that, the communication challenge that has continuously faced the organization both internally and with other organizations also contribute to the fragility in operations in the face of structural and environmental complexity (Maiers et al., 2005). Although cross-sector partnerships are inevitable, they often bring unequal power dynamics and divergent interests to the table, thus making it difficult to establish stakeholder involvement and dialogue (The Collaboration

Communication Conundrum.”, 2022). Despite these, contemporary literature in Georgia features recognizes that such calamities may bring about innovation and adaptation that will eventually result in resilience and improvement of stakeholder relationships in the nonprofit sector.

Digital divides and technological barriers in South Asia and Europe.

These gaps are further extended by the existence of operational gaps in NGOs in South Asia and Europe. A lack of access to modern digital infrastructure, besides disparities in the level of digital literacy, leads to institutional barriers in effective communication and coordination of work. These digital divides also hamper collaboration in real time and create organizational silos for the exchange of information. These technological challenges are further complicated with cultural and geographic heterogeneity, which makes it difficult to coordinate cross-continental teamwork without technology solutions specific to the context.

Roles and benefits of cloud-based project management systems.

Cloud technologies are seen as the groundbreaking facilitators to NGOs, providing scalable, flexible, and affordable solutions to simplify the data management and communication process. They ensure real-time cooperation and evidence-based decision-making, which is critical to maintaining productivity in virtual and geographically isolated settings (Shmatko et al., 2020; Maimun, 2023). Specifically, cloud-based Management Information Systems help to make remote work more efficient as it facilitates the efficient exchange of knowledge and skills between human resources, which makes organizations more efficient (Al-Azzawi and Kaya, 2021; Mithun, 2024). In addition to efficiency in operations, cloud implementation also fosters business dynamism by minimizing IT maintenance costs and increasing the scalability of the system (Shmatko et al., 2020; Omoike, 2022). However, the issues related to data security and privacy require specific risk reduction measures, as well as the investments in organizational flexibility and user education to achieve all advantages to their maximum (Maimun, 2023; Mithun, 2024). Cloud based systems therefore form a critical asset in terms of operations to the modern-day NGOs aiming to counter the existing operational inefficiencies and in the process of supporting international growth.

Transnational team and cross-cultural communication.

Cultural diversity in transnational NGOs creates a considerable challenge that negatively influences the productivity of the team and its unity. The language differences may lead to a breakdown in communication especially when the members of the team have different levels of command over the official working language (Zhang, 2024). The differences in communication styles (direct and indirect) and essentialist cultural orientation also complicate communication, which creates the threat of stereotyping and interpersonal conflict among the representatives (Thorrold, 2016). To overcome these issues, there must be culturally sensitive training and development of shared values as well as the use of communication technologies that reduce the impact of geographic and cultural distance (Xie, 2024; Li, 2024). It is worth noting that cultural diversity can be used as a source of creativity and innovation, hence the cross-border cooperation can be improved (Thorrold, 2016).

Technological innovation in the operations of NGOs case studies.

It has been proven that technological innovations have increased the efficiency of NGOs, their transparency, and interaction with stakeholders. Multifunctional management platforms centralize various functions, improve real-time cooperation, and increase the accuracy of the data, which is demonstrated by platforms explicitly oriented at the efficient work of the NGO (Parhad et al., 2024). Specialized project monitoring and volunteer management tools also enhance accountability and resources management (Auti, 2023). The technologies that promote transparency build trust among the donors, which leads to more support and sustainability (Pai et al., 2023). Examples are innovations like CSR-funding matchmaking platforms (Arellano et al., 2023) and humanitarian technology models (Veeraraghavan and Krishnaswamy, 2011), which both are scalable and can be applied across the sector. Irrespective of these advantages, there is still the problem of equitable access since smaller NGOs do not always have the infrastructure or human resources needed to effectively use such systems.

Analysis and research gap.

The available literature is categorical that NGO effectiveness is limited by the presence of constant operational, technological, and cultural drawbacks, especially when it comes to transnational operations that touch on South Asia and Europe. Although cloud computing and digital management systems have potential solutions, the existing literature presents the idea of generic benefits and does not focus on the specific needs the cross-continental cultural and technological differences bring. Besides, not many studies discuss the feature prioritisation to improve the cooperation of geographically distributed NGO teams. It is against this backdrop that this project aims to fill these gaps by coming up with a secure and scalable cloud-based project management system that is specifically developed to meet the operational realities of The Ayat Foundation in supporting effective communication, task management, and resource coordination between South Asian and European teams.

12.3 Methodology

12.3.2 Research approach

This project adopts a mixed-method research approach, employing quantitative and qualitative methods to address the complexities of creating a cloud-based project management system according to user requirements. The mixed-methods framework allows an in-depth exploration of operational matters and feature requirements through a combination of numeric survey data and contextual data gathered from interviews and open-ended queries. The above approach is likely to yield both overall trends as well as more experiential detail, hence bringing in an overall picture required for the system design.

12.3.3 Data collection

Data was collected through formal questionnaires completed by employees in various departments and geographically remote areas in the Ayat Foundation. The questionnaires gathered quantitative and qualitative data on the use of operational tools as it is currently operational, employees' skills, issues they feel, and cloud-based systems features importance. To complement this information and provide more contextual richness, a second qualitative data collection was done through a semi-structured interview with one of the founders. This mix of data points creates a rich and multi-dimensional stage on which to identify primary operating pain points and design requirements.

12.3.4 Data analysis

Quantitative

Data collected through a questionnaire was analyzed quantitatively using Microsoft excel by utilizing its statistical functions to determine challenges in common and areas of feature priority for the cloud-based system. Descriptive statistics, including averages, frequency, and percent to present answers about the use of the operational tool, employee competency, and principal challenges faced. This evaluation allowed data-informed understanding of cyclic issues and feature priorities so that system design would reflect unique operational realities of the Ayat Foundation.

Qualitative

With a limited number of qualitative inputs, 9 open-ended questionnaire responses and 1 interview, the thematic analysis procedure, which was appropriate for small sample sizes, was used for data analysis. Following a deep reading of each response and its transcription where necessary, meaningful statements were manually coded; recurring patterns or themes around operational challenges, communication barriers, and cross-cultural issues were identified. Despite the limited sample size, thematic saturation was attempted by intensively investigating all the available material to obtain insightful information. Themes complemented quantitative results by providing depth and context to pain points uncovered and guided the design of the cloud-based system in a way that resonates with real user experiences.

12.3.5 Findings and analysis.

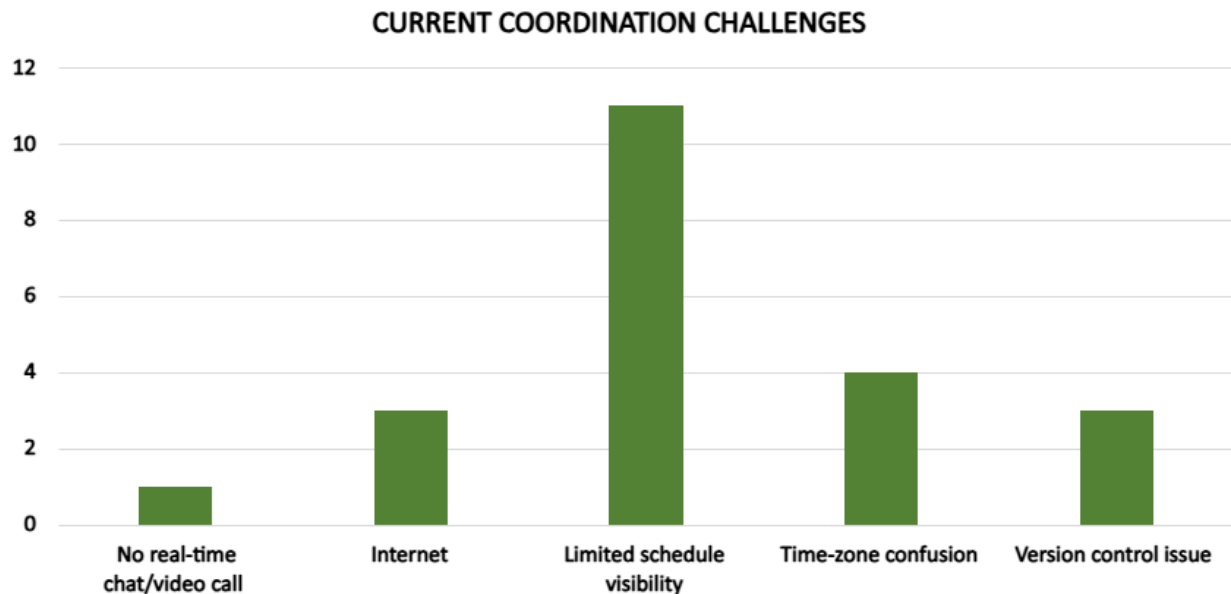


Fig.1

As shown in the chart, lack of schedule visibility is the significant operational risk; thus Emphasize the lack of planning coordination among the distributed teams at The Ayat.

Foundation across South Asia and Europe. This observation highlights a dire need for a unified calendar mechanism since the existing disengagement serves as an obstacle to proper implementation of projects. Other obstacles such as lack of understanding of the time-zones and frequent Internet connection outages are other examples that serve only to shed more light on the complexities created by geographical dispersal and unreliable bandwidth services. These observations support the need for having tools optimized to variable bandwidth conditions and automatic time zone settings.

The version-control problems and the lack of real-time chat/video calls are more infrequent, but they still indicate some concrete flaws in document management and real-time interaction, thus contributing to the discontinuous workflows and slow feedback. All these reasons support the need to have an integrated and cloud-based project management solution. The pain points outlined above offer a tangible basis of the design specifications of the proposed cloud-based project management system. The chart requires the prioritization of the platform functionalities that can provide the solution to the schedule management, real-time communication, and time-zone differences through foregrounding the operational pain points. This way, the system is positioned strategically in line with the lived experiences of the organization, which eventually improves the level of operational efficiency and guarantees successful international cooperation.

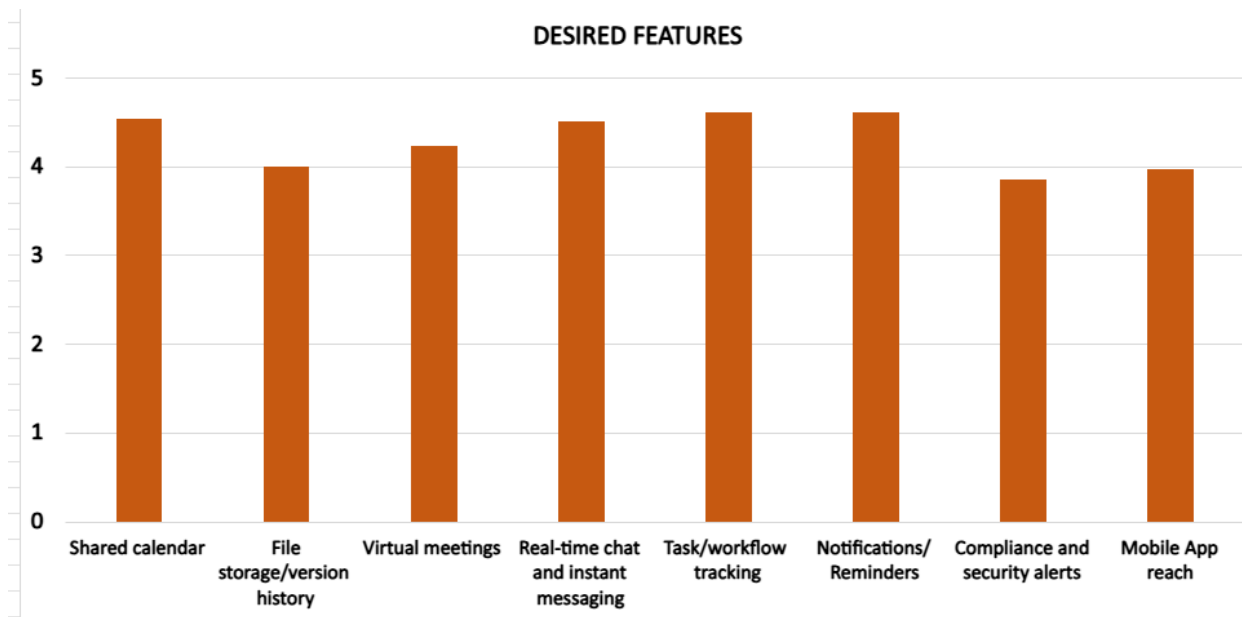


Fig. 2

As illustrated in the chart below, there is a steady and evident demand among respondents in a complete set of functionalities. The importance of such features as shared calendars, real-time chat and instant messaging, task and workflow tracking, notifications or reminders, and virtual meetings are ranked as the most important points, which highlights their centrality in resolving the current operational issues. The great demand of file storage with version history and accessibility by mobile apps further accentuates the need to have system accessibility, effective document control, and flexibility to dynamic and remote operating environments. Furthermore, high value attached to compliance and security warnings also fit well in the project scope to cater to regulatory and risk-related demands in South Asian and European environments. Taken together, the feature preferences described in this chart not only confirm but refine the initial purpose of the project to identify and document the barriers to operations systematically, through the translation of experiential challenges into functional requirements of a solution. This empirical prioritization provides a narrowed-down agenda on how to design the system and also makes sure that the developmental activities closely reflect the realities and aspirations of the internationally dispersed teams of The Ayat Foundation.

With these features requirements described in detail, the study will ensure that the development of the cloud system is informed by the real organizational requirements of the stakeholders. By focusing on the introduction of successful communication, scheduling, document management, and workflow tracking capabilities, easy cooperation will be achieved, all the bottlenecks of the past operations will be eradicated, and The Ayat Foundation will be able to act as a truly unified global organization. The principle of user-oriented design is the main key to more efficient cross-border cooperation and the achievement of higher organizational effects.

12.3.6 Other findings.

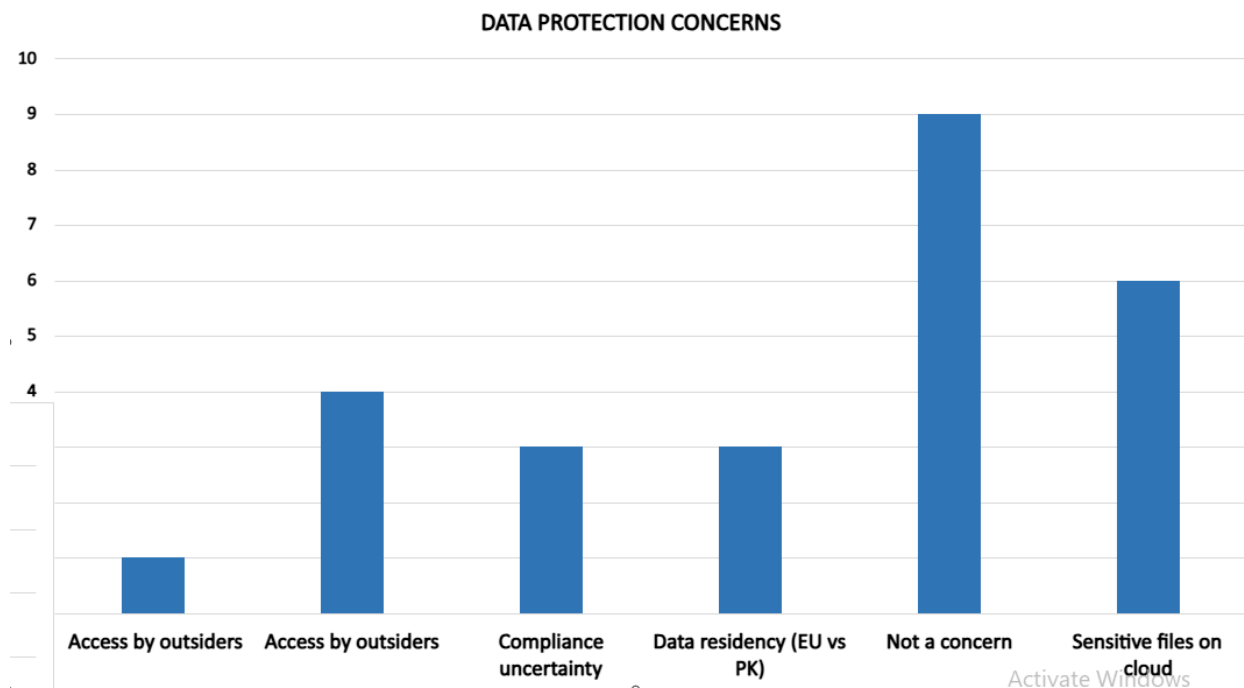


Fig. 3

The graph outlines the range of data protection issues expressed by the different stakeholders in the Ayat Foundation, directly connected to the initial goal of the project, which is to find and report operational complications that can undermine the effectiveness and security of the system. The subtlety of the perceived risk distribution indicates a range of priorities among the various users of the project, especially when it comes to data security and regulatory adherence. A finer-grained analysis shows that there are variable levels of concern over operational vulnerabilities such as external access, compliance ambiguity, data residency differences between EU and PK requirements, and sensitive file management on the cloud.

It is noteworthy that a significant percentage of the respondents' state data protection as Not a concern, which implies that they trust the existing practice, their priorities are different as the organizational staff, or they may lack the awareness of the fact that data protection is of utmost importance to the organization. The chart also reveals moderate to high levels of concern with respect to unauthorized access and unclear regulatory expectations, hence the need to develop strong technical and organizational protection.

The lack of clarity in compliance and data residency that can be seen throughout the answers can be attributed to the complexity of dealing with information across multiple jurisdictions that have different legal systems. This highlights the necessity of formulating a clear policy and implementing high-tech solutions, including GDPR-compliant systems and regional data separation, to ensure that user data are dealt with legally and transparently across the project. This complexity requires an aggressive approach to both the technical design and policy documentation in the initiative.

The sensitivity of files stored in the cloud prompts the use of advanced security controls, whereas the compliance and outside access issues only contribute to the necessity of role-based access control (RBAC), constant surveillance, and the compliance with the relevant regulations, such as the GDPR and local data protection laws.

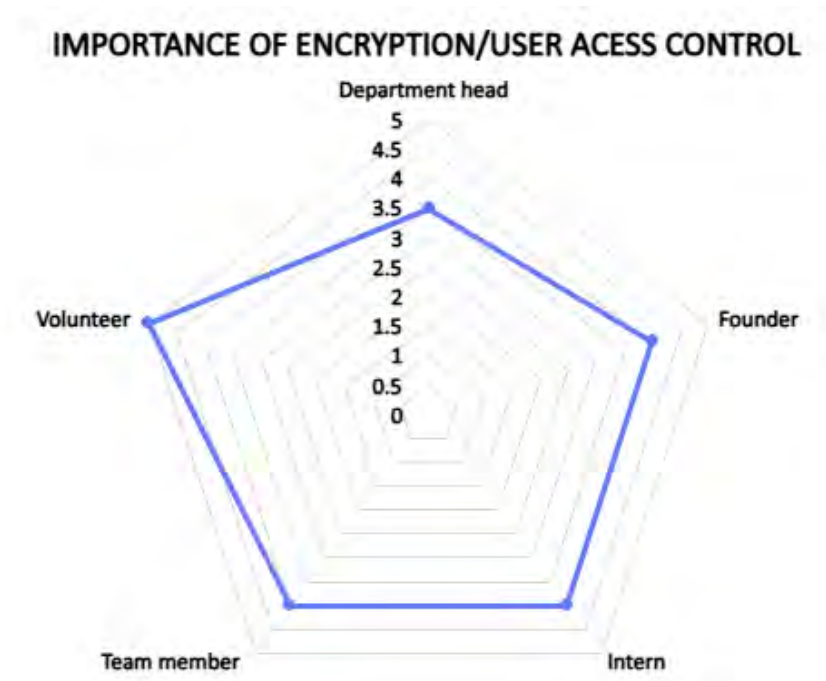


Fig. 4

The results indicate that the user access control and encryption are highly rated among all the roles, and the volunteer cohort has the highest scores, and the issue of data protection is both more specific and higher in the order of priorities among all the range of roles. This gives practical information on feature prioritization to ensure cross-continent and safe working at The Ayat Foundation. The prioritization of encryption/user access control and the particular data protection concerns expressed are not in apparent conflict; instead, priorities are stacked. Where role differentiation is present with respect to specifics of concerns, there is consensus that user access and data protection controls are critical. Within the framework of cross-border threat/compliance/outsider access, there is a consensus on the importance of strong encryption and access controls.

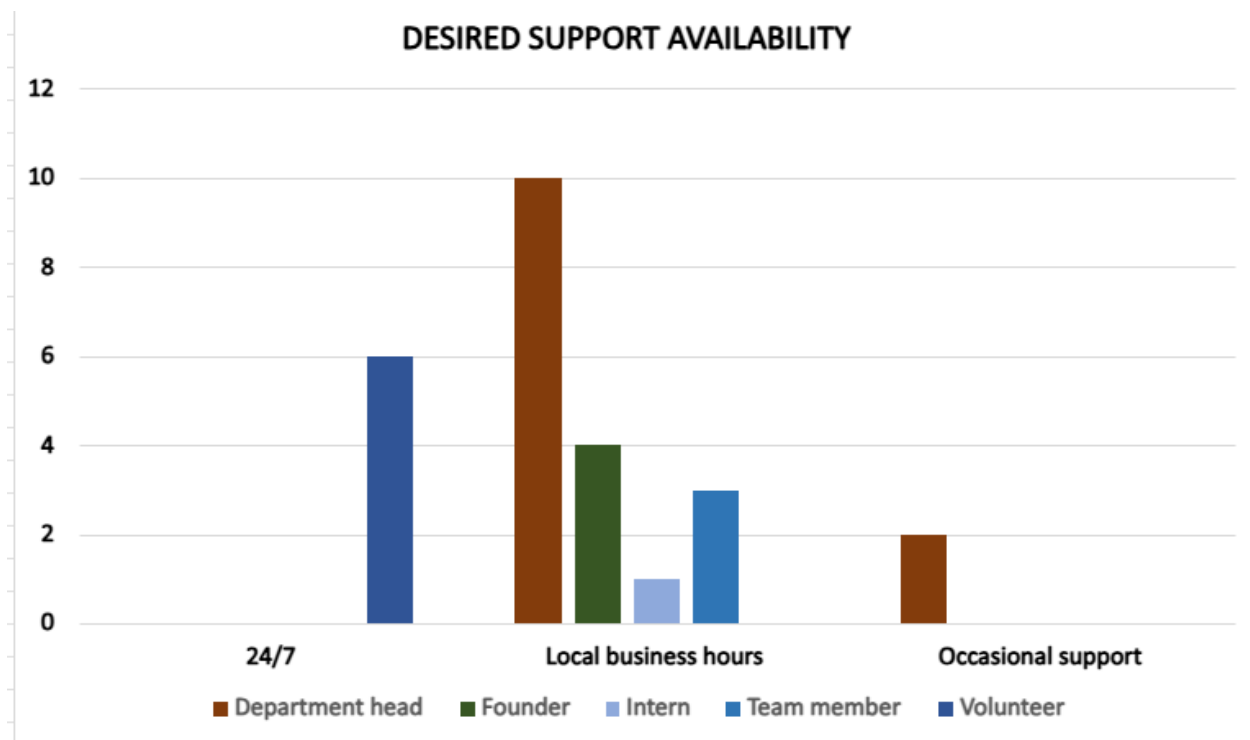


Fig. 5

The chart shows that support preferences by role are divergent in The Ayat Foundation, and there is a need to have specific support model that will enable cross-continent cooperation. Most positions are favored to be assisted in local office hours. This suggests that there should be an availability of support in line with the normal working hours, a feature that is normally best fitting formal organizations that operate in a particular area or time zone. There is also a preference by department managers towards intermittent support, which indicates some flexibility but at the same time indicates a resource constraint or less frequent occurrence of critical events. Volunteers, in their turn, obviously enjoy 24/7 support. This indicates that volunteers who can be located in remote locations and at odd times need support that will fit their intermittent schedules and time zones. Their requirement of 24-hour support testifies to the difficulty of coping with the involvement of far-flung, possibly part-time or on-demand participants on a regional basis.

The difference in the expectations on support is directly related to the project objective of increasing the cross-continent cooperation. In the case of distributed teams across time zones, the juxtaposition between 24/7 and localized support will likely increase participation, allow the timely solution of technical and communication problems, and inclusivity, especially when it comes to volunteers and remote contributors. The restructuring of the support model will eliminate obstacles to successful cooperation and project development and will directly support the goals of the foundation of a smooth and long-term cooperation.

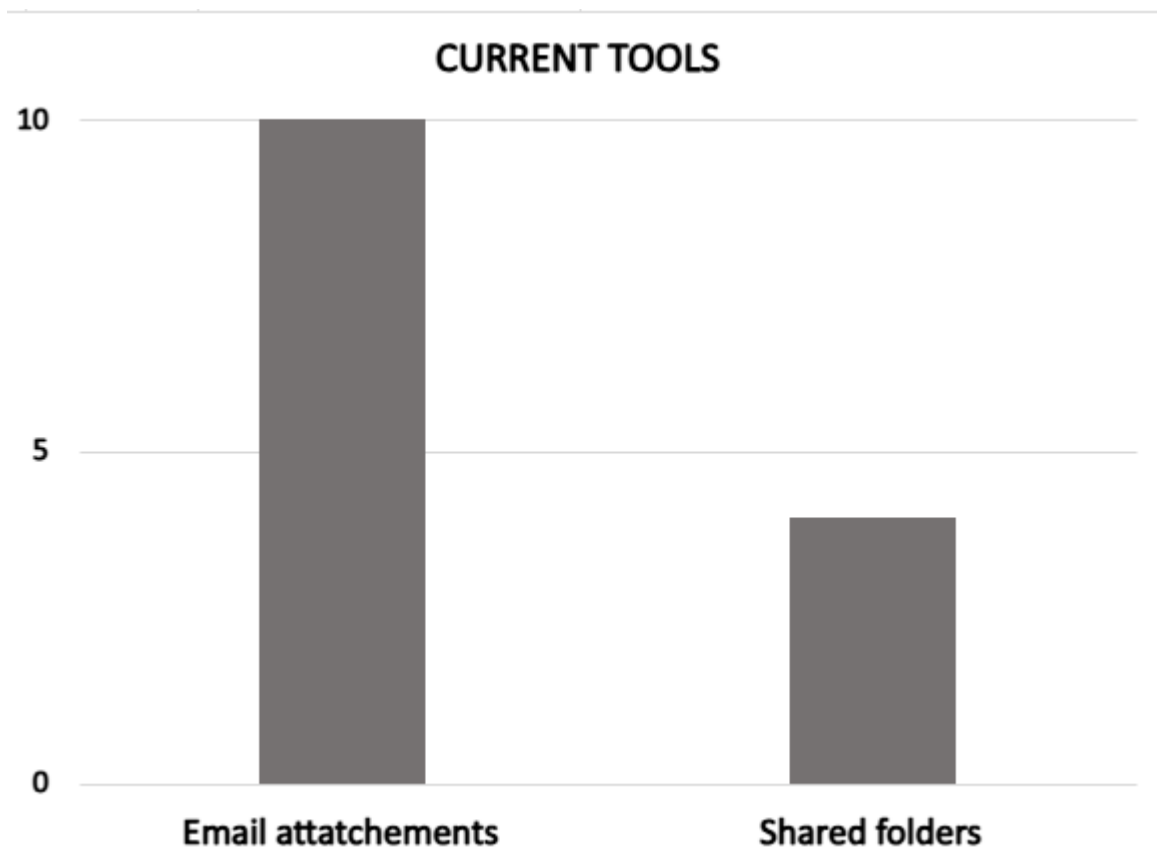


Fig. 6

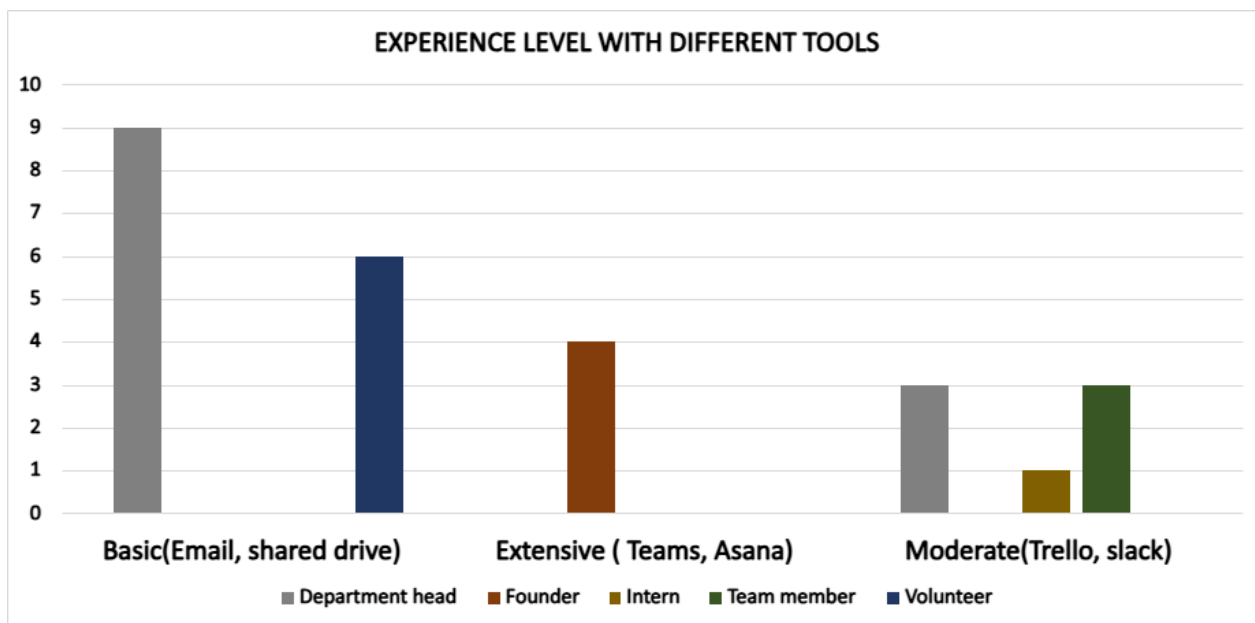


Fig. 7



Fig. 8

The findings of the charts indicate the differences in the usage of the tools, user satisfaction levels, and levels of experience of the participants in this project.

Tool Usage.

This chart demonstrates that the distribution is skewed with a single tool, which is the most used (Email attachments), followed by the next most used tool, shared folders, showing that not all tools were applied to the project equally. This implies the possible bottleneck of tool diversity, which affects the flexibility and innovativeness of the working process.

Satisfaction level.

Results show that there exists differentiation in the average satisfaction across roles. The least satisfied are the department heads (2.75) and the most satisfied are the volunteers (5). The founder and the intern are also satisfied (4) and the middle is occupied by the team members (3). It is worth mentioning that the average overall satisfaction stands at 3.56, which means that there is moderate satisfaction on the board. The differences are essential because the lack of satisfaction with leadership roles may hinder the effectiveness of the project and influence the relationship with the collaborators, whereas increased volunteer satisfaction may revitalize the volunteerism and productivity.

Experience With Tools.

Based on this analysis, the majority of the respondents have the experience of Basic level, the less common has the skills of the moderate level and the least common ones have the experience of the extensive level. Such a distorted experience profile would trigger training gaps and put at risk any efforts to implement more advanced tools or processes required to scale and sophisticate the operation.

By incorporating these discoveries, the project is currently dependent on a limited set of current tools, and those who are more proficient with higher-level solutions are even fewer in number. The satisfaction levels indicate that leadership might need specific interventions, such as the implementation of more effective or role-specific instruments and the improvement of training to increase satisfaction and productivity. The charts, combined with each other, suggest proactive investment in the diversity of tools to be used, upper-level training programs, and role-specific support to achieve the best results of the project and involvement of the participants.

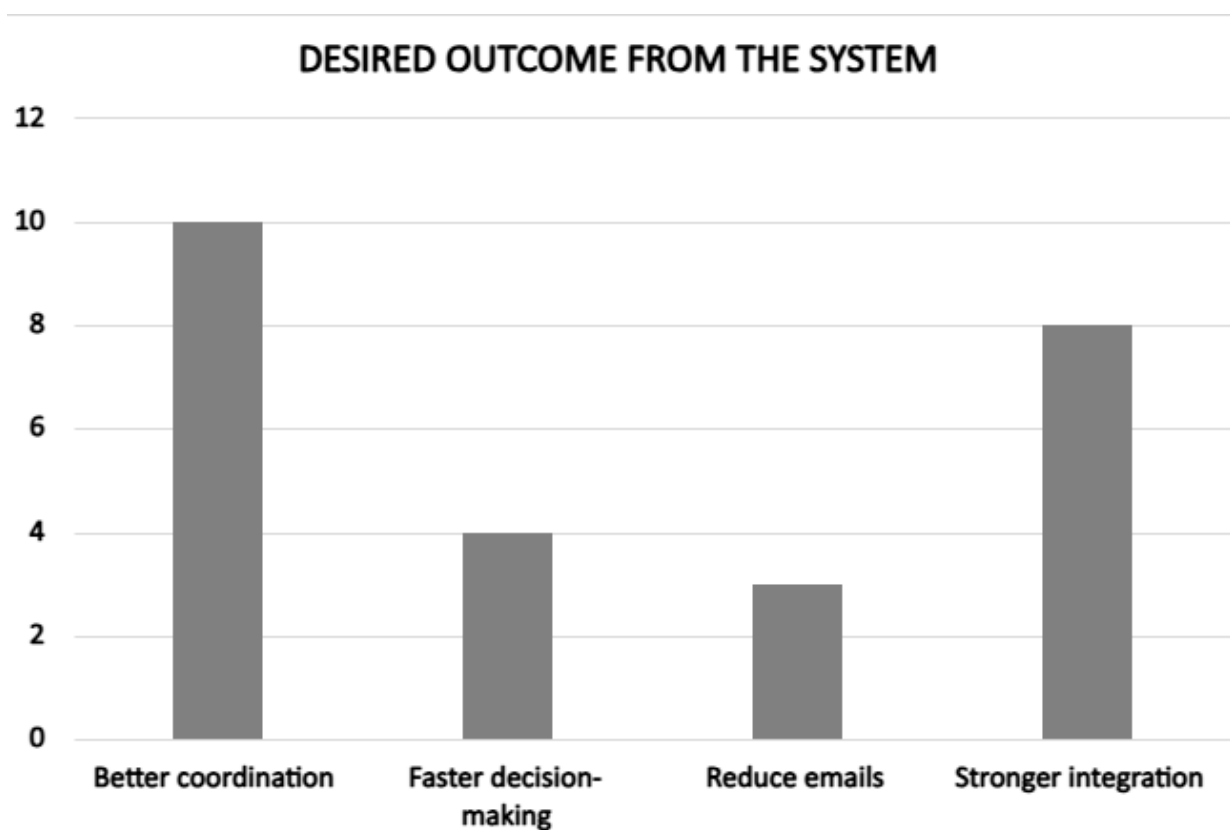


Fig. 9

As the chart demonstrates, increased coordination and closer integration between regions are given more focus than each other. To implement a transnational cloud infrastructure in this project, logically, organizational stakeholders will need features that will enable them to work with cross-regional partners, resource interoperability, and centralized management. Improved coordination will help negotiate the cultural, regulatory and operational barriers between South Asian and European organizations. The interns and team members, in turn, are more focused on quicker decision-making, which explains the features of operational positions as the ones that focus on the access to data and quick communication channels. This requirement is directly met by integrating automated workflow and communications integration into the cloud solution; this means that important decisions are made effectively even when a team is in a geographically remote location. The reduced number of emails to volunteers is indicative of a broader communication burden in transnational projects, so the

implementation of a system that limits redundant email communications, possibly by deploying a notification system, joint dashboards, and collaborative tools, also resolves disparities in working and operational styles common in South Asian-European teams. This does not only promote security, but also accountability and transparency in the regional interaction.

Therefore, the chart advises that the architecture of the system should be in a position to sustain the technical scalability and security and also be sensitive to the nonhomogeneous social, operational and regulatory interests of users in various positions and areas. This alignment will make sure that the basic needs of all the stakeholders will be included into the project roadmap, basing the technological decisions on the actual organizational routines and intended results.

The results of the analysis show that it is possible to develop an architecture that will combine technical scalability, high-level security, and user-centric functionality. To make sure the system interacts with the multifaceted social, operational and regulatory contexts of the South Asian-European collaboration, prioritization of scheduling ease, real-time communication, end-to-end versioning control and flexible support systems are implemented. The solutions approach attaches the project schedule to organizational terms, which ultimately increases the efficiency, trust, and effectiveness of cross-continental relationship.

12.3.7 Summary of findings.

Challenges.

Table 2.

Key operational challenges	Summary	Relevant information
Limited schedule visibility	This challenge mostly affects all roles, disrupts coordination, and hinders timely decision-making.	High priority to improve schedule visibility.
Lack of real communication tools	Insufficient chat and video calls disrupt workflow and collaboration	Must be combined with robust communication features.

Time zone confusion	Induces scheduling and work synchronization problems for remote teams.	Requires adaptive time-zone management features.
Internet connectivity issues	Limits effective participation.	It needs to be addressed with better technical support.
Version control issues	Leads to stale or conflicting file versions, complicating collaboration.	Must bring in stable version control.

Desired system features.

Table 3.

Feature	summary
Shared calendar across locations	Extremely necessary to enhance scheduling transparency and coordination.
Real-time chat and instant messaging	Critical for everyday communication and spontaneous decision-making.
File storage and version history	Facilitates document management and prevents version issues.
Video conferencing	Facilitates virtual meetings and better communication.
Task and workflow tracking	Enhance transparency and standardization in project execution.

Security and support.

Table 4.

Concern	Summary
Encryption and user access control	Unanimous agreement on the need for safe, cross-border cooperation.
Data protection concerns	Agree in principle but vary in detail with the need for security arrangements. Most prefer the
Support during local business hours	Most prefer the convenience of timely assistance to accommodate work schedules.
flexible/occasional support	Need for remote and volunteer participation across time zones.
Need for 24/7 support	Important for remote and volunteer engagement across regions.

Tool usage and training**Table 5.**

Dependence on limited tools (emails and shared folders)	Most users rely on a small set of familiar tools, and there is low adoption of advanced tools.
Satisfaction level with current tools used.	Indicate the need for better role-matched tools and training to enhance productivity.
Technical scalability and adaptability.	The system should accommodate role diversity, security, and geographic/regional priorities.

12.4 System design process.

The process outlines a strict breakdown of the system that is required to support an optimal cloud platform to The Ayat Foundation. This dissection is informed by a scrupulous

discussion of the unique operational imperatives of the Foundation throughout South Asia and Europe. The solution proposed by the recommendation focuses on balancing technical reliability and cost-effectiveness, security, regulatory adherence, and inclusiveness among users. To this end, the choice of a suitable cloud provider will become central to the success of smooth cooperation, scalability, and compliance with the law-related issues that are the core of the NGO activity and its future developmental path.

12.4.2 Scope.

The project is clearly defined to address operational issues facing The Ayat Foundation and to help in coordinating it as a transnational NGO, whose staff are geographically scattered in Europe and South Asia. The target scope is the implementation of a cloud-based project management system specifically to support the Foundation cross continental administrative, cultural and technological limitation. The key idea behind this initiative is to enhance communication, scheduling, monitoring of tasks and data security among employees who are located in various geographical and cultural environments.

12.4.3 Feasibility study

Due to the time constraint, a full-fledged feasibility study was not possible within this project. However, it is highly recommended that The Ayat Foundation conducts an extensive feasibility study before the adoption of the cloud-based project management system. This kind of assessment is essential to the assessment of the viability of the project in a multidisciplinary perspective, i.e., technical, operational, financial, and legal perspective.

Technically, the study will determine that the selected cloud infrastructure is able to safely and in a scalable way serve the users in South Asia and Europe regardless of the differences in connectivity constraints. At its operational level, it will evaluate user preparedness, culture, and training needs to encourage successful adoption. On the financial front, the review will examine the budgetary limitations that are characteristic of NGOs, hence the ability to select cost-efficient solutions without affecting quality. The study will ensure that data protection laws, including the GDPR and South Asian policies, are adhered to, which, in legal terms, will reduce the chances of fines and negative publicity.

The process of identifying possible risks and coming up with mitigation strategies at the feasibility stage will prepare the organization with informed decision-making tools that will increase the sustainability and success of the project. As a result, this study is an important phase to undertake before the implementation of the system in order to match the technological capacities with the organizational requirements and regulatory requirements.

12.4.4 Stakeholders, resources, and risks.

Stakeholders: The main stakeholders are senior management, which consists of departmental heads and founders, operational staff, interns, volunteers, and external partners, such as cloud service providers. Intentional stakeholder mapping gives rise to the creation of

customized communication and engagement plans that respond to the impact and needs of every group.

Resources: The organizational personnel; training and feedback, and the technological resources; cloud infrastructure and user equipment, are the primary resources to be mentioned. The budget is set aside with contingency funds to facilitate scalability and unexpected problems.

Risks: The recognized risks include technological adoption barriers, cultural misunderstanding, compliance mistakes and infrastructural differences, including variable Internet connectivity. Among the mitigations, there are mass user training, multilingual documentation, strong security, internet contingency systems, and dynamic support model.

12.5 Requirement Analysis

12.5.2 Gathering of Detailed Functional and Non-Functional Requirements

Functional Requirements:

Shared Calendar Across Locations: An urgent need to implement shared calendaring system between the different geographic locations is necessary to reduce scheduling conflicts and increase visibility and consequently make the planning of the South Asian and European units coordinated.

Real-Time Communication Techniques: The combination of instant messaging and video conferencing features is necessary to ensure a productive, real-time communication, which will offset the delay caused by the difference in time zones and eliminate the artificial pauses that disrupt the process of teamwork.

Task and Workflow Tracking: Intense task management, such as assignment, tracking of progress and accountability capabilities need to be developed in order to provide greater openness, ensuring that all tasks of the different units are executed in parallel.

Document Management Version Control: A secure storage with careful versioning is an invaluable part of document conflict management, integrity, and the ability to access and get updated information.

Notifications and Reminders: Regular notifications regarding due dates, status updates, and task accomplishments are the tools for responsiveness and the preventive measures of oversight.

Role-Based Access Control and Encryption: High-security implementation of measures include encryption and role-based access that will resolve diverse data protection issues, meeting regulatory demands, and reducing the risk.

Support Services: The 24/7 availability of volunteers is supported by a helpdesk that provides most roles with business-hours support, and 24/7 availability to volunteers based on

their personal working hours, which is used to provide responsive service throughout the organization.

Non-Functional Requirements:

Scalability: The architecture should be able to easily and smoothly expand with an increase in the number of users and with the added functionality without any noticeable performance degradation.

Usability: Role based interfaces must be intuitive and must be developed to suit various levels of digital literacy, hence making it easier to adopt and easy to use.

Reliability: The system should ensure high availability and fault tolerance in order to ensure continuity of service, which is a requirement of geographically dispersed teams.

Compliance: The company must comply with regional data privacy laws, such as GDPR and local South Asian laws.

Performance: To sustain real-time communication and collaboration under different bandwidth conditions, the system should be responsive; with a low latency.

12.5.3 Feature Prioritization by User Role and Project Objectives

Priorities are based on the comparative importance of the user roles and the need to abide by the overall goal of improved cross-continent coordination and operational efficiency.

High Priority Features:

- **Common calendar, instant communication (chat/video), and task monitoring** are the key priorities of the department heads, founders, and team members who have to plan and make decisions.
- **The version control in document management** is also a high priority in all positions to promote the integrity and transparency of data.
- **Role-based access and encryption**, the highest priority of the volunteers and executives which is a security measure to protect sensitive information.

Medium Priority Features:

Notifications and reminders, which are necessary in every position, can be configured differently and at different intervals.

Support: Exception management requires flexibility provided by local business-hour support of founders and department heads.

Lower Priority Features:

The 24/7 support to volunteers means that they are assisted in cases of non-standard and dispersed schedules of participation.

The usability features can be improved, and the refining of the features can take place as the experience increases.

This hierarchical prioritization model will ensure that resource allocation and development activity is focused on those qualities which have the largest impact on collaboration and operational needs, and still allow role-specific preferences and limitations to be fulfilled.

12.6 System design.

User Interface Layer (Frontend)

This layer is the representation of the various types of users that include Department Heads, Founders, Team Members, Interns, and Volunteers, all of whom are the users of the system, either through web or mobile application. The interface modules are designed in a role-based manner in order to provide the right access level and usability experiences.

Application Layer (Back End Modules)

- **Communication Module:** Enables real time chat, video conferencing, and presence indicators to be used in real time communication.
- **Shared Calendar Module:** Uses time zone scheduling, event management and reminder.
- **File Management Module:** Provides version control, security and role-based access to a centralized document repository.
- **Workflow and Task Tracking Module:** Allows workflow automation, reporting, and assignment and progress monitoring.
- **Security Module:** This includes user authentication, user authorization, encryption, and audit trails to ensure data confidentiality and regulatory compliance.

Cloud Infrastructure Layer

- **Elastic cloud hosting;** Scalable resource allocation is provided, including Google Cloud.
- **API gateway;** provides integration points of external services and legacy tools.
- **Database services;** ensure scalable and redundant safe storage.
- **Load and network balancers;** provide effective and dependable distribution of service.

Support and Monitoring Layer.

- The infrastructure of the localized helpdesk is 24/7 and offers round-the-clock support.
- System monitoring records security alerts, performance measurements, and uptime measurements.
- Analytics module provides an insight into the metrics of system use and collaboration.

12.6.2 User Roles, Access Permissions.

Founder / Senior Leadership:

Access: Complete administrative access to all modules in the system, project configuration, user role management, data access, and reporting.

Permissions: Ability to create, modify and delete projects; assign roles; see all communications and security options; accept workflows.

Privileges: Access to confidential financial and operational information; set compliance options including GDPR.

Department Head / Manager:

Access: Top management of departmental projects and group members.

Permissions: Capacity to add and modify tasks, observe project processes, check team timetables, grant documents, and censor department communication platforms.

Privileges: Creation of departmental activity reports and incomplete visibility into the global compliance settings.

Team Member:

Access: Project permissions are provided by assigning and relating to communication channels.

Permissions: View and edit task status, chat and video calls, upload and edit documents with designated permissions, and notifications.

Privileges: Personal management of tasks, the ability to add a contribution to the team discussions as an article.

Interns and Volunteers:

Access: Limited access to project and mostly read-only accesses to larger system spaces.

Permissions: The ability to comment on assignments, upload papers in relation to assigned tasks, access certain communication threads and have limited status updates.

Privileges: Training material and support resources.

12.7 System features

1. Cloud Architecture and Infrastructure.

Scalable Cloud Provider: Providing nonprofit pricing, data centers around the world, particularly in Europe and Asia, guarantee low latency and legality, vital for supporting the Internationally distributed user base with compliant infrastructure that is reliable to the Foundation.

Microservices Architecture: Provides scalable services, which are independently scalable and improve agility and fault tolerance of the system.

Managed Databases, Backups that are Automated and Geo-Replicated: Assures data. inter-regional integrity and availability.

Container Orchestration: Helps to deploy and update quickly with little. downtime.

Through this architecture, high availability as well as scalability and geographical performance is ensured and a favorable compliant system that can accommodate transnational NGO activity.

2. Security, Compliance, Privacy, User Identity Management and Legalism.

Data Encryption

Encryption of data will guarantee that all sensitive information in the system, including, personal data, project documents, user credentials, and communications are converted to a nonportable format based on powerful cryptographic keys like AES-256. This is used on data in transit as well as data at rest such as that stored in databases and file systems. With this, system guarantees that using hardware-secured, region-specific key management, the system will guarantee encryption keys are securely stored and handled as required by local regulatory requirements.

Encryption helps to safeguard the integrity and confidentiality of sensitive data of the NGOs to aver liberation or manipulation, which is the top priority to assure trust and fulfillment of global data protection regulations.

Threat Detection & Response

The system has installed AI-driven real-time to mitigate against dynamic cyber threats, user activity and network monitoring tools that can be used to detect unusual or possibly lame action. Incident response mechanisms, which are automated, help to respond fast containment measures, e.g. lockdown of the compromised accounts or isolation of impacted network segments hence reducing damages. Frequent penetration testing and complementary vulnerability testing identify and fix vulnerabilities data flows across the borders that are susceptible to attack within the system, particularly in cross-system.

Additionally, a centralized logging and Security Information and Event Management (SIEM) help to track and monitor events in a comprehensive way and provide forensic.

investigations, maintenance of persistent vigilance on the distributed NGO environment.

Regulatory Compliance

Since the Ayat Foundation is of an international scale, everything is closely regulated by the GDPR. Personal information of citizens of the European Union, and requiring the data to be within accepted jurisdictions, explicit user consent management and respecting the rights of the data subjects such as access, correction and deletion requests. At the same time, the system incorporates mechanisms to abide by the emerging data protection laws in South Asia, such as the Pakistani nascent laws and financial regulation regulations. This dual legal compliance is a guarantee of the NGO is legally cross-jurisdictional, evades punishment, and ethical in the management of personal data.

Identity Management

Strong identity management is based on SSO functionality to offer users smooth, easy access to various system modules using a single identity which has been authenticated. MFA enhances security by making it secondary with some verification factors e.g. SMS mobile app code token, and discouraging unauthorized access. Logins of users are accomplished by federated identity integrations authenticated with identified external accounts such as Google, Microsoft, or LinkedIn, simplifying the user management, particularly in case of volunteers and external partners. Guest user management temporary, limited access to consultants or collaborators, with the guarantee of responsiveness without loss of security. It is in this combination that these measures, strict yet flexible, protect sensitive information with convenient and legitimate user experiences.

These characteristics are impermeable to handling sensitive personal and organizational information, observance of international laws, reduction of cybersecurity threats that are important in the creation of trust in a legal operation.

3. Data, AI, Analytics Readiness

Cognitive Services:

This feature employs high-tech AI to translate text, languages, and speech between many at a single unit, thereby allowing easy interactions within the diverse teams in South Asia and Europe. The language barriers need to be overcome, and efficient cross-cultural cooperation must be facilitated.

Sentiment Analysis:

This is used to find the emotional overtones of the communication and potential points of disagreement by analyzing the content of the communication in team interactions. It helps the management to become proactive in diagnosing and resolving issues offering the superior teamwork and stronger cooperation.

Predictive Analytics and Machine learning:

These technologies consider historical project data to predict the timelines, resource requirements and so on risk factors. This will help the project managers to plan as much as possible, allocate resources that work efficiently and to foresee the challenges before affecting outcomes.

Power BI Dashboards:

Live data visualization dashboards provide the leadership with action data about resource measures, collaboration measures, and project progress. This enhances transparency

and decision-making tactics by means of complicated information compressed into a type of intuitive reports.

Chatbots & Automated Support:

Chatbots can be AI-based and provide automated support to users in the case of common queries and troubleshooting decreasing workload on the support staff. This guarantees that volunteers and staff are assisted in good time, increasing user experience and operational continuity.

All these qualities allow The Ayat Foundation to embrace smart automation and evidence-based thinking, promoting more effective, inclusive, and efficient project management within its various and global teams.

4. Availability, Resilience and reliability.

Auto-Scaling and Load Balancing.

Auto-scaling is the automatic scaling of the computing resources, including virtual containers or machines, depending on the real time demand. This is to imply that in times of heavy traffic, like the several users on the projects at a time or the bursting of communications, the system dynamically upsurges resources to ensure that there is easy running with no downtime.

In case of demand reduction, it downsizes to reduce expenses. Load balancing in collaboration with distributing incoming network traffic evenly among servers or instances to avoid slowing down or congestion of a single resource. These features combined are guarantees of no interruption, responsive service irrespective of the varying workload or traffic.

Automated Backups and Geo-Replication.

All system data is routinely saved in the form of an automated backup procedure that is saved in a safe location containing project information, documents, and user data. Geo-replication also augments data consistency by copying these copies to more than one geographically distributed place. This plan cushions the company in case of data loss due to equipment malfunctions, cyberattacks, or natural catastrophes. The system can in case of any failure or data corruption, make a fast recovery by restoring the last backup of a different location and

the recovery thereupon is fast sustenance of activity of the Ayat foundation globally distributed workforce such features of the system will ensure that the systems are available and recover fast, which is crucial in case of an incident global groups and vital NGO activities.

5. Scalability, Operations, Performance.

Elastic Compute Resources

This aspect enables separate microservices, including communication, timetabling, file management, to size itself autonomously to actual demand. Rather than scaling out the whole system, resources are dynamically allocated to the areas of need, and costs and assurance are made optimal smooth operation even when there are spikes in usage. This modular scalability is critical to the different workflow loads of the organization in South Asia and Europe.

Performance Monitoring

Monitoring and continuous tracking of important system health metrics including CPU and memory utilization, response time, error rates and user activity. Through this proactive oversight helps to detect performance degradation or bottlenecks early, so that corrective measures may be taken in time.

User experience data is also collected through monitoring in order to maintain the responsiveness and intuitiveness of the system, since it is essential to diverse and geographically spread users.

Database Sharding

The method breaks down the database into smaller, faster and easier to manage portions spread in various jurisdictions or servers. Sharding data nearer to the locations of users allows sharding of data, for example Europe and South Asia, the system lowers latency and accelerates the data retrieval, and thus enhancing general responsiveness. In the case of The Ayat Foundation, sharding provides effective access to massive amounts of project and user data and without overwhelming one database.

These characteristics make the system capable of expanding in a smooth manner, offer quality and speed of access, and keep cost effective, which is all critical to the growing cross-continental business of The Ayat Foundation.

6. Sustainability and Cultural Adoption.

The Ayat foundation has to embrace cultural Adoption and Sustainability features that are fundamental in the process of ensuring it is safe.

The cloud-based project management system of the organization is viable, embraced and operational throughout its multinational work forces:

Multilingual UI + Localization:

This tool ensures the user interface and communication tools to support multiple languages and all supporting numerous languages, such as English, Urdu, German. It also has a right to left script support of languages such as Urdu and culturally applicable graphics and design. This brings about comfort to the user and minimizes cultural frictions, which facilitates easy working together between teams that have different language backgrounds.

Flexible Work Scheduling:

The system supports different working schedules, geographical holidays, and cultural subtleties, like the Ramadan in South Asia or the European state holidays. Such flexibility enables deferential and realistic arrangement of events and sessions among teams that are geographically located, have various hours and calendars.

Onboarding Modules:

In-built educational tools based on various levels of digital literacy assist users, particularly those volunteers who are likely to have limited tech experience, in order to learn and embrace the platform. This decreases resistance to the usage by the users, enhances usability and encourages long term adoption of the system.

These characteristics enhance inclusivity, cultural diversity, and the system should make sure it's easy to use, and sustainable to users of varying regions and levels of skills, which is essential to being successful in the long term within a transnational NGO setting.

7. Cost Management**Tiered Pricing Models:**

The system can allow free access to volunteers who are able to offer free services or contribute part time/ad hoc, by the introduction of the tiered pricing, which lowers the financial obstacle to involvement.

In the meantime, paid subscriptions among the staff members provide that operational users that need advanced characteristics or increased consumption levels help in incurring infrastructure expenses. This form of structure spreads cost to use that is fair and reasonable and appropriate to diverse degrees of involvement in the organization.

Nonprofit Discounts & Grants:

Cloud providers who offer discount schemes and exemption on charitable organizations; exploiting these programs ensures optimal use of resources in harsh budgetary constraints that are characterized by NGOs. This association with the price subsidies comes in a very convenient manner and minimizes the total cost burden, that would enable Ayat foundation to use more money in its programs rather on infrastructure.

Resource Optimization: Automatic scaling:

The auto-scaling technology is a dynamic scaling technique of scaling the compute and storage resources according to the prevailing amounts of demand to make sure that the system consumes only what is needed at given time. This elasticity also avoids unnecessary expenditure on low-utilization times and automatically scales capacity in peak operational times, maximizing cost without compromising performance.

Integration of an Open-Source tool:

Where possible, the incorporation of open-source software will cut licensing fees and vendor lock-in risks. This strategy gives The Ayat Foundation the flexibility and cost reductions and still be able to have access to highly functional and safe features needed in project management.

Cost management is important in sustaining the cloud-based system at a low cost while maintaining service robustness. All of these techniques will enable The Ayat Foundation to strike a balance between financial sustainability and the technological needs to operate with complicated, cross-needs, continental projects, which are sustainable in the long term.

8. Integration, Interoperability and Migration.

Payment Integration API Gateways.

The API gateways are used to interface the system safely and effectively with the external payment processors such as stripe international payment and local payment services such as easy paisa and Jazz Cash, which are popular in South Asia. This facilitates easy handling of donations, charges or reimbursements and accommodating the regional payment preferences and compliance requirements.

Calendar Syncing

The system is integrated with the popular calendar applications like Google Calendar and Microsoft outlook, Gmail with APIs to coordinate events, meetings, and deadlines automatically. This will eliminate the manual updating of schedules, minimize conflicts and offer users having a smooth access to their work agenda on a familiar interface, which makes everything better time zone coordination.

Document APIs Document Collaboration APIs.

Connection to well-known cloud storage and document managers like Google Drive, Dropbox, and one drive enable users to be able to access, share and actively edit project documents in the system. This minimizes the fragmentation of data, provides up-to-date version control, and enables open collaboration in the face of geographical separation.

Communication APIs

The system incorporates the use of APIs, such as the slack, WhatsApp API that extends the channels of communication to the volunteers and remote team members, who are largely operating mobile messaging apps. This enhances interaction, improves real time solutions and finance community-based organization which is a pre-condition in NGOs in diffused regions.

Accounting System Integration

The financial information can flow between project management and financial oversight teams because of the integration with the accounting services like QuickBooks and Xero using APIs easily. This integration promotes transparency, simplifies the reporting of donors and automates, financial tracking, reduction of paper documents, and time wasting in the administration.

Each of these integration features ensures that, this cloud-based system for The Ayat Foundation is able to communicate and liaise with the existing and external organizational tools This interoperability ensures no data silos, workflow optimization, optimizes operations, and enables the NGO with complicated multi-regional functions at minimal meddling or multiple tasks.

.

9. UX Considerations and Accessibility

Progressive Web App: Offline Capability and Low Bandwidth Optimization

Progressive Web App would enable the users to interact and access the system even with unstable internet connection. By localizing major content and functionalities on devices' cache. PWAs can allow an organization to work continuously even when the network is unavailable and which is essential to team members in the rural or low-connectivity regions of South Asia. The offline capability enables uninterrupted productivity and minimizes use of unreliable internet. Furthermore, PWAs are also efficient in data usage to reduce bandwidth consumption and thus enhance the loading speed as that can enhance the end user experience in the regions with low data speeds.

Data Compression & Adaptive Streaming

To deal with connectivity challenges, the system suggests that data compression techniques be used to minimize the size of files as well as communication data transferred such as video streams. Adaptive streaming adjusts the quality of the video on-the-fly according to the speed of the user's internet connectivity; hence, it provides an uninterrupted communication without unnecessary buffering or audio/visual quality deterioration. This is significant when live video conferencing between European and South Asian teams for improved cooperation within heterogeneous networks conditions.

Multi-lingual Support

The system is to support the linguistic diversity of the users of the Foundation is to be addressed by the system as well since they are conscious of the support of different languages like English, Urdu, German and French. The localized date and time formats are automatically localized ensuring that users are provided with culturally-related and understandable timescale information reducing the bewilderment. Inbuilt language translators enable users to engage in comfortable interaction in the language they speak which develops an inclusive environment; setting and reducing the barriers due to the language barrier that can impede collaboration

Role-Based Dashboards

Specific dashboards for management, volunteers, and team members enhance usability, in a way that it presents only the information and actions that are applicable to all its user's responsibilities. For example, volunteers are given simple lists of tasks with support resources, the department heads can have access to data analytics, project overview, and workflow approval. Role based interfaces restrict cognitive load and increase productivity since they focus the user finishing up without distracting activities and overload of information.

Accessible Design for Diverse Abilities and Digital Literacy Levels

The system is designed to address users of diverse technical skills and abilities; including keyboard navigation, clear intuitive layouts, adjustable font sizes, and screen reader. Additionally, simple, jargon-free language and contextual help to ensure less tech-savvy users can easily comprehend and operate it. By giving importance to accessibility, the Foundation can ensure maximum system adoption and participation across its diverse team base.

Collectively, these features of UX and accessibility make this project management platform effective and inclusive for all users, regardless of location or language proficiency, technical skill, or ability, can collaborate productively and comfortably. This wide usability fosters engagement, reduces barriers, and strengthens the Foundation's cross-border teamwork.

12.7.2 Summary of system features.

Table 6:

Feature Category	Summary Description	Prioritized Features	Why Prioritized
Cloud Architecture and Infrastructure	Scalable cloud with global data centers, microservices, managed databases with backups, and container orchestration for modularity and reliability. Ensures compliant, high-performance infrastructure.	Scalable cloud with global data centers	Essential for reliable, compliant access across continents

Security, Compliance, Privacy, User Identity	End-to-end encryption, zero trust architecture, real-time threat detection, GDPR and regional compliance, strong identity management including SSO, MFA, and federated logins. Ensures data privacy, security, and legal compliance.	End-to-end encryption, GDPR compliance, zero trust access	Protects sensitive NGO data, meets legal standards
Data, AI, Analytics Readiness	AI-powered multilingual translation, sentiment analysis, predictive analytics, interactive dashboards, and AI chatbots for support. Boosts communication, planning efficiency, and data-driven decisions.	Multilingual translation, predictive analytics, and dashboards	Vital for cross-cultural communication and informed planning
Reliability, Resilience, and Availability	Auto-scaling and load balancing with geo-replication and automated backups. Guarantees uninterrupted access, disaster recovery, and data sovereignty enforcement.	Auto-scaling, geo-replication, automated backups	Ensures system stability and rapid recovery for global teams
Operations, Scalability, Performance	Elastic compute resources, database sharding for speed, and continuous performance monitoring ensure fast, efficient scaling to match workload peaks without compromising user experience.	Elastic Compute, performance monitoring	Supports a varied workload with high responsiveness
Cultural Adoption and Sustainability	Multilingual UI/localization with culturally sensitive design, flexible scheduling for regional holidays, and training/onboarding modules tailored for diverse digital skill levels promote inclusivity and sustained adoption.	Multilingual UI and flexible scheduling	Addresses language and cultural differences, boosting adoption
Cost Management	Tiered pricing models, nonprofit discounts, auto-scaling for efficiency, and open-source tool integration to maximize value while controlling expenses under tight NGO budgets.	Tiered pricing models, nonprofit discounts, open-source tool integration.	To maximize value while controlling expenses under financial constraints.
Integration, Interoperability, Migration	API gateways for payments, calendars, document collaboration, communication tools like WhatsApp, and accounting integrations support seamless workflows and operational data exchange.	API gateways for payments, calendars, document collaboration, communication.	To support seamless workflows and operational data exchange.

UX Considerations and Accessibility	Progressive Web App with offline support, data compression, adaptive streaming, multilingual support, role-based dashboards, and accessible design for diverse abilities ensures wide usability and reduces barriers across regions and user skills.	Progressive Web App, offline mode, role-based dashboards	Enables access in low-connectivity areas and provides clear usability
-------------------------------------	--	--	---

13. Recommendations.

13.1 Service provider.

The Ayat Foundation is recommended to adopt Microsoft Azure as its cloud provider for the cloud-based management system. Azure is notable for the broad range of support it offers to nonprofit organizations, in terms of large discounts and grants which significantly reduce the financial barriers typical for NGOs. The platform provides full-fledged integrated cloud services in all critical feature categories defined in the system such as scalable architecture, robust security systems, and innovative AI and analytics. The low latency and adherence to stringent compliance in its globally distributed data centers, especially in Europe and Asia and strict compliance with global and local laws such as GDPR, which are important in such activities of the Foundation across continents.

In addition, flexible identity management solutions, such as secure single sign-on to multifactor authentication and federated identity, enable people to access with a comfortable and secure approach for a diverse user base across various countries. The focus on cultural flexibility in the platform including multilingual support, localization as well as UX interfaces according to the different stages of digital literacy aligns with the necessity of sustained adoption across diverse teams in terms of culture and language..

13.1.2 Cost-benefit analysis.

Table 7.

Criteria	Microsoft Azure	Amazon Web Services (AWS)	Google Cloud Platform (GCP)
Non-profit support and discount.	Excellent - Annual credits through Microsoft for Nonprofits; Office 365 integration; dedicated nonprofit portal.	Good - AWS Activate offer credits; limited nonprofit-specific program.	Good – Annual credit through Google for Nonprofits; strong education focus

Certifications and compliance	Comprehensive - ISO 27001, SOC 2, GDPR, HIPAA, 90+ compliance offerings; EU Data Boundary.	Comprehensive - ISO 27001, SOC 1/2/3, GDPR, HIPAA, 140+ compliance programs.	Good - ISO 27001, SOC 2/3, GDPR, 50+ certifications.
AI, Machine learning, analytics and cognitive services.	Rich integrated AI tools (Cognitive Services, Power BI) native to platform, seamless integration. Azure AI, Azure ML; Translation (100+ languages); 15+ AI services	Comprehensive AI/ML services, but requires more configuration. Amazon Bedrock (multi-model); SageMaker; Rekognition; Comprehend; Translate (75 languages)	AI research integration, but enterprise support less for NGOs. Vertex AI; Cloud Vision; Natural Language API; Translation API (130+ languages); strong ML focus
Ease of use and integration.	Excellent: Deep integration with Microsoft ecosystem (Teams, Outlook, SharePoint, Power BI).	Good - Third-party integrations via AWS Work Docs, Amazon Chime; additional costs	Excellent - Native Google Workspace integration (Docs, Drive, Meet); included in nonprofit offering
Pricing model and cost management.	Flexible tiered pricing, automatic scaling offers cost control, nonprofit discounts.	Pay-as-you-go with reserved instances but cost complexity and unpredictable bills.	Sustained use discounts and straightforward pricing, but fewer NGO-specific benefits.

Support and training.	Extensive enterprise support with NGO-focused training and community programs.	Strong support programs but less NGO specialization.	Community support and training growing, but less NGO-specific resources
Security.	Comprehensive - Azure Security Center, Azure AD, Key Vault, DDoS protection, Microsoft Defender integration	Comprehensive - AWS Shield, IAM, CloudTrail, Guard Duty, most mature security tooling	Good - Cloud Armor, IAM, Cloud Security Command Center, Chronicle; strong encryption

The optimal cloud solution for The Ayat Foundation is Microsoft Azure because of its high-cost effectiveness, operational suitability, and technical capacity. With a total cost of ownership 46% less than AWS and 24% less than Google Cloud, Azure offers unsurpassed cost-efficiency in a non-profit organization. Additionally, it offers collaboration tools, multilingual artificial intelligence support, and wide regional data centers, ensuring seamless compliant as well as efficient operations in South Asia and Europe.

However, services offered may bring operational complexity and necessity for IT support and user training. It also poses risks of internet connectivity required in the rural environment, such issues can be overcome through proper planning and capacity building, and therefore, Azure is the best and most sustainable option in this case of the cloud-based project.

management system at the Foundation.

13.1.3 Changing Management: Ensuring User Adoption and Smooth Transition

Prepare a communication strategy: The timely and consistent communication will ensure that all users are aware of the new changes that will occur, manage expectations, and decrease uncertainty which is one of the most promising factors to gain buy-in and reduce resistance to the new system.

Involve important stakeholders and representatives of the users: The use of influential users and decision-makers in design and implementation facilitates ownership and a feeling that the system is based on real user requirements and subsequent advocacy to the wider audience of users.

Offer individual training on-on-demand or in-person based on individual learning styles and schedules; in such a manner, all users of any skill will be able to feel at ease with the new system.

Build champions in the different departments: Local champions enable peer-to-peer learning and provide the user with direct and reliable contacts to guide and trouble-shoot, easing adoption at any organizational level.

Design easy-to-use documentation and quick reference manuals: System guides that are easy to access give users the independence to troubleshoot and build confidence and eliminate the need of IT support.

Gather and resolve user feedback on a continuous basis: User feedback during the migration process will make sure that issues are identified and addressed on a timely basis. The outcome ought to be a greater trust and the chances to repeat to suit the needs of users.

Apply incremental implementation or pilot projects: Rolling out the implementation or pilot groups test unknown issues in smaller scale and can make focused corrections and limit the number of disruptions to the normal operations before the full-scale rollout.

13.1.4 Ethical considerations.

The suggested cloud-based system will be planned in such a way that it will install stringent ethical guidelines and privacy assurances to ensure the safety of the sensitive data belonging to the marginalized communities sacrosanct, the autonomy of users through informed consent, and strict role-based controls with absolute transparency. These will be critical towards the sustainability of credibility of the NGO itself, to safeguard the rights and dignity of all the stakeholders involved, and in abiding by applicable international regulatory frameworks as well as regional regulatory frameworks.

a. Data Privacy and Protection

Sensitive Data Processing: The system shall store personal data and other information regarding the health conditions of the vulnerable populations and encrypt the data both at transit and at rest, and shall store the data as per the respective regional data protection regulations, such as the GDPR applying to any data within the EU; in the example of Pakistan, local regulations on privacy are essential to preclude any unauthorized access or leakage.

Minimization Principle: This translates to the collection of personal information that is not necessary to attain the objectives of a project and hence restricts the exposure of sensitive information.

The anonymization and the pseudonymizing of data demand that the data be anonymized or pseudonymized whenever feasible to safeguard identities, and allow aggregate data analysis.

b. Avoid data abuse

Strict Role-Based Access: Only allow access to that which is necessary by the role of an individual or a service in order to limit internal unauthorized access to data or misuse.

Activity Monitoring and Audit Trails: The management is supposed to keep a track of who accessed the data and who made modifications in the information to prevent and make it difficult to misuse the information.

Data Retention Policies: The management should formulate clear guidelines or the maintenance and the safe disposal of data so as to ensure that sensitive information is not stored forever.

c. Ethical Use and Sensitivity to Culture.

Avoid Harm: Evaluate, and reduce the effects of the use of data on the beneficiaries; in particular, ensure that no harm or stigma are generated by the data management process on the most vulnerable populations.

Equitable Access: The management ought to make it so that the system is not disproportionately inaccessible to the less digitally literate or underserved users through fairness and inclusiveness.

Local Norms Compliance: The respect to the cultural norms and local ethical standards, along with formal legal requirements.

d. Security Measures

Effective Cybersecurity: It has to establish multi-layered security- intrusion detection, multi-factor authentication, and endpoint protection- against external attackers.

Incident Response: The incident management procedures should be clearly defined in case of a security or privacy breach so as to be responsive in a quick way.

14. Conclusion.

Operational constraints of the Ayat Foundation highlight how NGOs are challenged with complicated issues when operating transnationally with other cultures and technology settings. It highlights that the process of adopting modified digital infrastructure is quite critical in terms of surmounting communication, scheduling and coordination bottlenecks. This study has proposed a cloud-based project management system that can overcome these challenges directly and give a scalable, secure, and robust platform that provides a platform to collaborate effectively and in real-time manage resource management.

In addition to that, the foundation may guarantee cultural inclusivity, user experience, and a fit with relevant regulatory systems, it will accomplish the large-scale adoption among its diverse stakeholders. Long-term success is developed with an investment in training, flexible support models, and integration with the existing tools. When adopted, this solution will allow The Ayat Foundation to improve its international activity, the program delivery, and the number of its social impacts in underserved populations..

14.1 Limitations.

Among the weaknesses that affect the study are: the small sample size used in the collection of operational data limits generalization of the results and is not able to cover all the aspects of challenges in all the user segments; and the lack of technical testing limits comprehensive understanding of practical system operation, scalability and integration problems in the real world. Also, a formal feasibility study was not undertaken, and this leaves gaps in the evaluation of the cost's implication, preparedness at infrastructural level and sustainability over a long term. It is also limited in scope in developing cloud-based project management system without additional consideration to the organizational and contextual factors including compatibility of existing systems, staffing, and policy environment. The data privacy issues, which are the most important since NGO is forced to work with vulnerable populations, are also a persistent concern in the process of creating a system that will reconcile the demands of the operations with the rigid adherence to the regulations and consent, as well as, with ethical application. All these restrictions are indicative of the fact that an iterative development process, a large amount of pilot testing and constant participation of the stakeholders in the refinement, as well as validation of the proposed solution, is required.

14.1.2 Implementation Plan

Table 8.

Phase	Duration (weeks)	Key activities and milestones
Phase 1: planning and setup	1-2	Requirement gathering; infrastructure setup; nonprofit account creation; procurement of resources.

Phase 2: System configuration	3-5	Configure cloud infrastructure (Azure); set up microservices; integrate security controls; API connections.
Phase 3: Testing and feedback	6-8	Conduct unit, integration, and user acceptance testing; gather feedback from diverse user roles; iterate fixes
Phase 4: Training and deployment	9-11	Deliver user training sessions; deploy system to production; monitor initial usage; begin support handover.
Phase 5: Post launch support	12+	Provide 24/7 technical support; continuous monitoring; address bugs; roll out feature updates and scalability.

14.1.3 Required resources.

The cloud-based project management system will require a balanced collection of resources to implement:

Human Resources: The human capital needed to implement the same, that is, project managers, cloud architects, and system engineers to set up and integrate the infrastructure; information security specialists to secure data, trainers to help people use the infrastructure successfully, support personnel, and change champions at the departmental levels to give continuous support and make the move fruitful.

Technical Resources: The system will need an efficient cloud system, that is, Microsoft Azure services: virtual machines, databases, communication APIs, and AI modules. Encryption, identity control, surveillance, and backup tools need to be procured; also needed are end user devices such as computers, smartphones and a good internet connection to assist them experience smooth accessibility and collaboration within the South Asian and European regions.

Financial Resources: The funding will be utilized in paying subscriptions of the cloud services, nonprofit grants to optimize cost, personnel salaries, training programs and possible hardware upgrades or purchases. Contingency budget will be required to handle unforeseen technical issues or upscale the resource allocation in a short period of time.

14.1.4 Training methods.

Table 9.

Method	Description
Instructor led workshops, webinars	Interactive live sessions to demonstrate features, answer questions, and guide hands-on practice.
E-learning modules	Self-paced digital tutorials and videos accessible anytime, covering core functionalities and best practices.
Documentation and user guides	Comprehensive manuals and quick-start guide available online for reference and troubleshooting.

15. References.

Abiddin, N. Z., Ibrahim, I., & Aziz, S. a. A. (2022). Non-Governmental Organisations (NGOs) and Their Part towards Sustainable Community Development. *Sustainability*, 14(8), 4386. <https://doi.org/10.3390/su14084386>

Al-Azzawi, T., & Kaya, T. (2021). The impact of cloud computing on organizational performance. *International Journal of Cloud Applications and Computing*, 11(4), 136–151. <https://doi.org/10.4018/ijcac.2021100108>

Auti, N. (2023). Empowering Change: an advanced NGO management system for efficient operations, enhanced donor engagement, and transparent community development. *International Journal for Research in Applied Science and Engineering Technology*, 11(11), 443–447. <https://doi.org/10.22214/ijraset.2023.56509>

Chavula, P., Kayusi, F., & Mwewa, T. (2025). Assessing the impact of erratic governance on local and international NGOs in Zambia: an exploratory study using machine learning and artificial intelligence. *LatIA*, 3, 79. <https://doi.org/10.62486/latia202579>

Kazanskaia, A. N. (2025). Technology for Collaboration and Networking in Non-Profit Organizations. . <https://doi.org/10.64357/neya-gjnps-tchtleffimp-09>

Kiarii, E. N. (2025). Barriers and Enablers of NGO Sustainability in Developing Contexts: Empirical Evidence from Kenya. *Journal of Human Resource & Leadership*, 5(1), 42–61. <https://doi.org/10.70619/vol5iss1pp42-61>

Li, C. (2024). Cultural differences and communication in the internationalization strategies of multinational enterprises. *Advances in Economics Management and Political Sciences*, 74(1), 229–234. <https://doi.org/10.54254/2754-1169/74/20241553>

Maiers, C., Reynolds, M., & Haselkorn, M. (2005). Challenges to effective information and communication systems in humanitarian relief organizations. *Conference Paper*. <https://doi.org/10.1109/ipcc.2005.1494163>

Maimun, N. (2023). Evaluation of the use of cloud computing technology in managing organizational information systems. *Deleted Journal*, 5(1), 21–25.
<https://doi.org/10.61992/jiem.v5i1.72>

Mithun, S. (2024). The Influence of Cloud-Based Management Information Systems on Remote Work Efficiency. *1(01)*, 1(01), 01–07. <https://doi.org/10.71292/sdmi.v1i01.1>

Omoike, N. O. (2022). Exploring adoption of cloud computing as innovation in organizations. *International Journal of Science and Research Archive*, 7(1), 501–506.
<https://doi.org/10.30574/ijrsra.2022.7.1.0153>

Omojola, S., & Okeke, K. (2025). Cloud-Based solutions for scalable non-profit project management systems. *Advances in Research*, 26(2), 418–427.
<https://doi.org/10.9734/air/2025/v26i21309>

Pai, A. A., P, R. K., Thomas, S., & D, P. (2023). NGO CONNECT: Technology for Non-Profit Organisation Management. *Technology for Non-Profit Organisations*, 1–6.
<https://doi.org/10.1109/csitss60515.2023.10334076>

Parhad, N. P. S., Pusadkar, N. O. N., Patil, N. I. P., Shinde, N. V. B., & Nalge, N. R. V. (2024). Centralization of NGO management sites. *International Journal of Advanced Research in Science Communication and Technology*, 205–208.
<https://doi.org/10.48175/ijarsct-15232>

Shmatko, S. G., Shlaev, D. V., & Sorokin, A. A. (2020). Application of cloud technologies for effective management. *IOP Conference Series Materials Science and Engineering*, 873(1), 012021. <https://doi.org/10.1088/1757-899x/873/1/012021>

Тарасова, А. (2023). Проблемы финансирования некоммерческих организаций. *ТЕНДЕНЦИИ РАЗВИТИЯ НАУКИ И ОБРАЗОВАНИЯ*, 99(5), 38–41.
<https://doi.org/10.18411/trnio-07-2023-257>

Veeraraghavan, S., & Krishnaswamy, P. (2011). A Novel Technology Based Framework to Address Global Humanitarian Issues. *Global Humanitarian Technology Conference*.
<https://doi.org/10.1109/ghtc.2011.60>

Xie, Z. (2024). The influence of cultural backgrounds on team dynamics and decision making in multicultural environments. *Transactions on Economics Business and Management Research*, 10, 139–145. <https://doi.org/10.62051/1nng6893>

Zhang, B. (2024). Cross-cultural Engineering team management in the context of globalization. *Frontiers in Business Economics and Management*, 16(1), 132–134. <https://doi.org/10.54097/61mpwd46>

15.1 Appendences.



PROJECT
PROPOSAL.pdf