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Research Article

Investigating the Effects of Technological Innovation on Organizational Performance

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Abstract

This study examines the influence of technological innovation on the organizational efficiency of the Organization for Relief Development (ORD) in Kabul, Afghanistan. The study emphasizes the growing necessity for non-governmental organizations (NGOs) to implement contemporary technologies in order to improve their responsiveness, efficiency, and competitiveness, particularly in humanitarian settings. A case study methodology that integrates quantitative and qualitative methodologies was implemented. In order to gather primary data from personnel in a variety of critical domains, such as finance, IT, procurement, human resources, and programs, a structured questionnaire was implemented. Secondary data was obtained from books, journals, and websites. The instrument's reliability was validated by Cronbach's alpha values ranging from 0.713 to 0.924, which guaranteed internal consistency. According to the conceptual framework, the five primary dimensions of innovation are technological advancement, interdepartmental communication, the utilization of digital tools, system development enhancement, and biometric systems. Technological innovation acts as the independent variable, while organizational performance is identified as the dependent measure. The correlation study's findings suggested a strong positive correlation between organizational success and technical innovation, with statistically significant relationships identified among the majority of variables (Pearson r = 0.404–0.885). The research showed that productivity, efficiency, and overall organizational success were substantially impacted by improved system development, interdepartmental communication, digital tool implementation, and biometric technology. The results emphasize the necessity of augmenting operational efficiency through the integration of digital and biometric technologies, effective communication channels, and continuous system improvement. The study suggests that technological innovation significantly improves organizational performance in NGOs like ORD. It suggests that to sustain innovation and enhance overall effectiveness, increased funding should be allocated to technology-driven reforms, professional development, and staff capacity-building.

Keywords: Technology, Organization performance and Afghanistan

Introduction

The main point of this research is that there isn't enough focus on technical innovation. Adopting better technology can make rivalry between groups stronger, which can help them respond to humanitarian situations more quickly and maybe even lessen their effects. Many research on operational efficiency (Upton & Kim, 1999) have shown that the idea that technology advancement leads to better operational performance is a key idea. The discovery and utilization of novel technologies are crucial for the progress of numerous nations. Local technical progress arises

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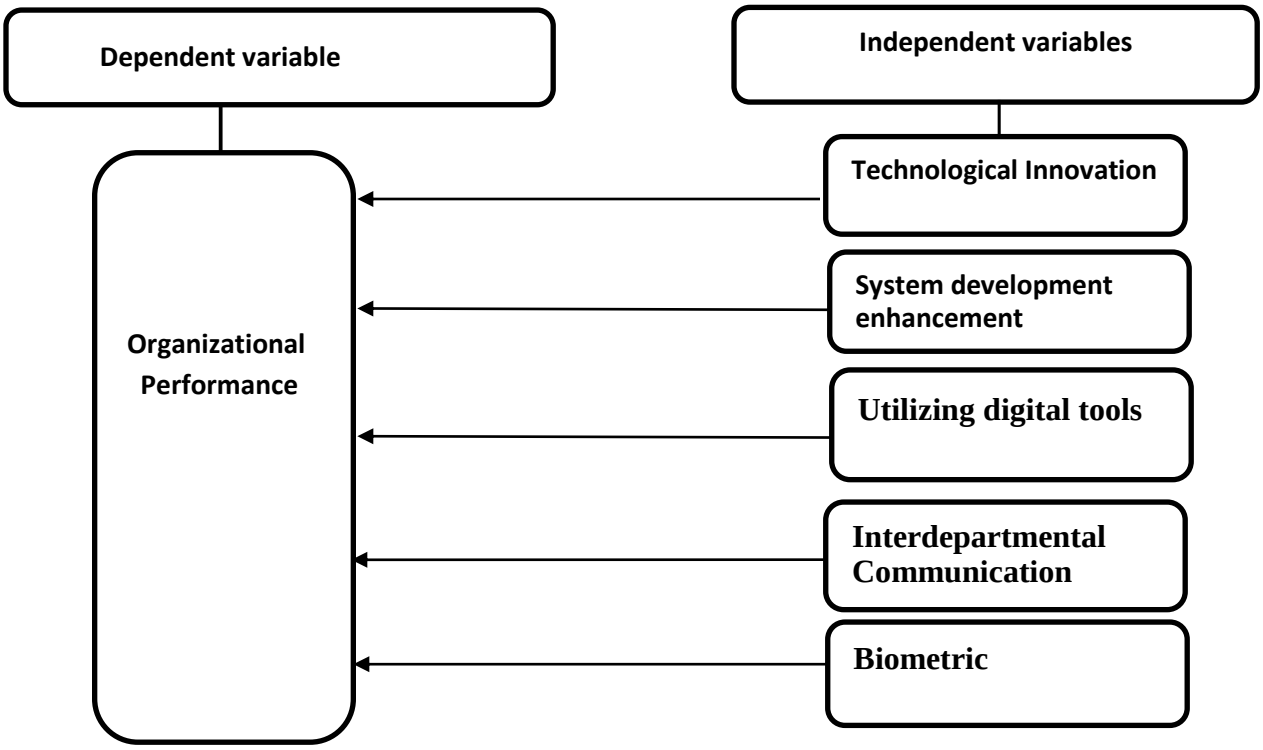
from a transition from traditional methodologies to the use of technologies akin to those in more industrialized nations (Roehm & Sternthal, 2001). This study aims to investigate the extent to which the integration of technological advancements in a developing region influences organizational efficacy.
Comprehensive reform is necessary to enhance effectiveness and efficiency while alleviating the financial load on the organization, supported by session papers. This reform should primarily focus on technological enhancements (Oyeyinka, 2006). Research indicates that many companies require substantial technological improvements; however, efforts to encourage technology adoption inside these organizations have been ineffective (Mabrouk & Mamoghlim 2010). Non-governmental organizations must be creative and always come up with new ideas to stay ahead of the competition in a global economy (Robbins & Coulter, 2009).

The discourse surrounding the extent to which the adoption of new technologies enhances organizational effectiveness is quite extensive, despite the numerous advantages these technologies present (Mabrouk & Mamoghli, 2010). Advancements in operational methodologies significantly bolster an organization's capacity to maximize the value extracted from its resources. Hafeez's (2013) research demonstrates a correlation between the profitability of businesses and the significance of innovation. Furthermore, research conducted by Kiraka, Kobia, and Katwalo (2013) revealed that various types of innovation, including process, product, positioning, and paradigm, demonstrated a positive correlation with the success of certain micro and small enterprises. Previous studies regarding technological advancement have primarily focused on countries deemed developed (Worch & Truffer, 2012; Hafeez, 2013). The limited number of studies undertaken at the local level have been insufficient in scope, focusing mainly on particular facets of innovations, including exploratory types and diverse contextual elements (Kiraka, Kobia, & Katwalo, 2013; Odhiambo, 2008; Kiiyuru, 2014).

Importance of the Problem
A full reform of the NGOs in Kabul province is needed to make them more effective and efficient and to ease the financial strain on these groups. Session papers will communicate this change, which will include a number of efforts, such as improvements in technology, better handling of money, growing capacity, and better governance frameworks. Non-governmental organizations (NGOs) face a major problem: they need to keep up with technology (Oyeyinka, 2006). Research indicates that a considerable proportion of non-governmental organizations (NGOs) lack the requisite technological infrastructure, and efforts to enhance technology adoption inside these entities have been ineffective (Strong & Dishaw, 1999). Consequently, it is imperative to rectify this technological mismatch and promote the incorporation of contemporary technology to improve the operational efficiency of NGOs (Carter, 2005)

Conceptual Framework
Following is the conceptual framework of the study that identifies the explanatory and explained variables of the study.



Technological Innovation

Kantor (2001) posits that innovation transpires when an idea or invention is converted into a service or product of significant value. In the context of this analysis, the term "innovation" will exclusively pertain to technological advancements. Most narratives suggest that technological innovation encompasses the utilization of novel scientific insights and the establishment of new organizational frameworks. The process is shaped by various elements, particularly the internal attributes of the organization, including its capacity to assimilate new technologies and its ability to forge relationships with external individuals. The current resources of the company could be utilized more effectively, and fresh opportunities for innovation may be explored, leading to the creation of more sophisticated products and services or enhancements to the production process itself (Goh, 2002).

System development enhancement

The enhancement of system development pertains to the integration of novel functionalities within a pre-existing system. Enhancements may manifest in various ways, such as the incorporation of novel functionalities, the elimination of recognized defects, or a modification in operational procedures to increase efficiency. The three primary approaches to replacing an outdated system include utilizing an existing commercial solution, developing a completely custom-built system, or employing a hybrid model that combines elements of both. The enhancement of system development is frequently utilized to attain cost efficiencies, improve performance, ensure regulatory compliance, or leverage new technological advancements (Kash & Rycroft, 2011). Acquiring and integrating software solutions created by external entities to augment your existing system.
To ascertain whether a system requires rectification, systems development managers may find it advantageous to conduct an operational study. Through the application of operational analysis techniques, one can effectively address issues and prolong the system's lifespan while requiring only a modest allocation of time and resources. Minor alterations to a pre-existing system are referred to as enhancement requests. Enhancing a current system ought to require no more than ten days, and can be finalized within a month if one aspires to excel as a systems development manager (Wu & Lin, 2009).

Utilizing Digital Tools

Digital tools and services make business easier by improving e-commerce, communication between businesses, and the management of internal systems. Digital tools and services need an initial commitment of resources, but this investment could lead to long-term efficiency by making things easier. Digital technologies make it easier to share data and work together, which gives people more chances to do these things (Kash & Rycroft, 2011). There are many different technologies that can help with managing paperwork, client relations, human resources, and other internal procedures (Alstrup, 2010). Intranet/extranet, human resource management systems, and customer relationship management platforms are the three main digital tools and services that businesses use. An intranet is like the internet, but only people in your company can use it. It makes it easier for workers in different places to work together by letting them talk to each other and work together more effectively. Companies may keep an eye on their interactions with customers in a systematic, efficient, and profitable way with customer relationship management systems (Alstrup, 2010). A human resource management tool helps a business make the most of its most important asset (its employees) and keep track of how well they are doing.

Interdepartmental Communication

Interdepartmental communication is the way that different departments in an organization share information, knowledge, and resources. Company-wide conference calls, memos, corporate emails, and staff SMS are all examples of interdepartmental communication. But the point of all communication between departments is to make it easier for people to work together, plan, and make good decisions. When departments talk to one other well, they can work together to solve problems, make procedures more efficient, and reach common goals. Investing in modern communication technologies is a great way to make it easier for departments to talk to each other all the time. But it's not easy to pick the proper program. Below, we list the best tools on the market right now and talk about their pros and cons.

Biometric

A biometric system is a pattern-recognition mechanism that identifies an individual by employing a feature vector derived from a particular physiological or behavioral trait. The feature vector is often saved in a database or recorded on a smart card issued to the individual post-extraction. A biometric system grounded on physiological parameters is often more dependable than one reliant on behavioral factors, despite the latter's potential ease of integration into certain applications. A biometric system can function in two distinct modes: verification and identification. Verification just contrasts the templates associated with the claimed identity, whereas identification evaluates the collected biometric data against the templates of all users inside the database. This indicates that identity and verification are separate issues requiring different solutions.

Organization performance

Richard, Devinney, Johnson, and Yip (2009) say that organizational performance is the successful completion of an organization's planned mission through good management, hard work, and good governance in order to reach its goals. Chang, Tsui, and Hsu (2013) say that responsiveness, flexibility, cost-effectiveness, productivity, asset efficiency use, and reliability are some of the ways to measure how well a nonprofit organization is doing. The steps an organization takes to reach its goal are what really matter for its performance. The results of an organization are the visible parts that show how well it is doing (Valmohammadi & Servati, 2011).

Other common performance criteria are market share, profitability, growth, competitive positioning, and stakeholder satisfaction (Kantor, 2001). However, financial measures are just one way to look at how well a business is doing (Venkatesh & Davis, 2000). There are four parts to business performance: open systems, internal processes, human interactions, and logical goals. Each part is measured by changes in its own variables. It seems that there is a lot of disagreement over what the best or most acceptable way to judge how well an organization is doing. There are many various ideas on what organizational effectiveness should look like, and success typically depends on the study's theoretical frameworks and goals (Carton & Hofer, 2006). Some individuals utilize financial indicators as a criterion to evaluate the advantages or disadvantages of a decision or course of action. Performance measurement uses many ways to measure things to look at internal processes and see how well actions are working and how quickly they are being done.

Research Questions

What are the effects of technological innovation on organizational performance?
What are the factors affecting the innovation process in an organization's performance?
What is the greatest effect of innovation on an organization's performance?

Research Objectives and Hypothesis

1. To identify the relationship between technological innovation and organizational performance in ORD.

H2: There is no relationship between technological innovation and organizational performance.

Significance of the Study

This research holds considerable importance as it has the potential to clarify the influence of emerging technologies on the efficiency of organizations. As organizations progressively harness technology to secure a competitive edge, it becomes imperative to comprehend the influence of emerging technologies on their overall effectiveness. This research endeavors to augment current knowledge by exploring the influence of technological innovations on various dimensions of organizational performance, such as efficiency, profitability, and employee satisfaction. We shall explore the ways in which emerging technologies can improve process efficiency and boost productivity, focusing on resource utilization and workflow optimization; profitability in terms of technology's capacity to enhance revenue and minimize costs; and employee satisfaction as it pertains to technology's influence on the workplace, job roles, and overall morale. The research endeavors to offer an in-depth exploration of the ways in which emerging technologies could augment organizational performance, thereby securing their competitive edge in the marketplace. An exploration will be undertaken regarding the potential of emerging technologies to revolutionize processes, thereby improving workflow efficiency and increasing productivity. This involves a thorough analysis of efficiency, emphasizing the optimal use of resources and improved operational methods that allow organizations to attain increased output with reduced inputs. The study will investigate the ways in which technology can augment corporate profitability through the amplification of sales and the identification of cost-saving measures aimed at enhancing the overall financial performance.

Methods for the Study

The purpose of this study was to investigate the impact of technological innovation on the effectiveness of organizations within the Organization for Relief Development (ORD) in Kabul, Afghanistan. A case study methodology employing a deductive approach was employed in order to obtain a comprehensive understanding of the occurrence in question. In order to gather primary data from employees working in the human resources, finance, procurement, information technology, and program departments, a structured questionnaire was utilized. We gathered secondary data by consulting books, journals, periodicals, and websites. According to Nunnally (1978), Cronbach's alpha values are a measure of an instrument's reliability. An instrument is considered reliable if these values above the recommended level of 0.60. A pilot test involving five employees proved that the instrument exhibited reliability, as evidenced by the Cronbach's alpha values for all dimensions exceeding the required threshold of 0.60. Dependability coefficients that ranged from 0.713 to 0.924 were found for the six aspects that were studied; these characteristics included technological innovation, digital tools, interdepartmental communication, and organizational effectiveness.

The study sample consisted of thirty employees, of whom twenty-eight were chosen by stratified sampling in order to guarantee participation from a number of different departments. The data that we acquired came from two sources: primary surveys and secondary analysis. Before the questionnaires were disseminated, official authorizations were obtained. The data that had been obtained was coded, edited, and analyzed with the use of statistical tools. In order to quantify the influence that technological innovation has on organizational performance, descriptive analysis was utilized. Reliability and validity evaluations were used to support this study. The next section presents the findings.

Study Results

Table 1: Results of Correlations for Hypothesis -1

		TI	SDE	UDT	IC	Biometric	OP
Technological innovation	Pearson Correlation	1					
	Sig. (2-tailed)						
System Development Enhancement	Pearson Correlation	.885**	1				
	Sig. (2-tailed)	.000					
Utilizing digital tools	Pearson Correlation	.711**	.652**	1			
	Sig. (2-tailed)	.000	.000				

Interdepartmental Communication	Pearson Correlation	.379*	.404*	.370	1		
	Sig. (2-tailed)	.047	.033	.053			
Biometric	Pearson Correlation	.768**	.762**	.707**	.506**	1	
	Sig. (2-tailed)	.000	.000	.000	.006		
Organizational Performance	Pearson Correlation	.737**	.853**	.604**	.429*	.591**	1
	Sig. (2-tailed)	.000	.000	.001	.023	.001	
****. Correlation is significant at the 0.01 level (2-tailed).**							
***. Correlation is significant at the 0.05 level (2-tailed).**							

Table 1 displays the findings of a bivariate correlation test for hypothesis 1, which is the possibility that the five dimensions of technological innovation; technological innovation, system development enhancement, use of digital tools, interdepartmental communication, and biometrics are related to each other and to organizational performance. Based on the data, it can be said that 15 distinct correlations with Pearson 'r' values between 0.404 and 0.885 have been found to be statistically significant at the 1 and 5 percent levels. However, at the 1 and 5 percent levels, the Pearson 'r' values of 0.370, which represent one distinct association, were not deemed significant. Digital technologies were used to find these insignificant relationships, and the results serve as the foundation for rejecting hypothesis 1. There is room to determine the many levels of link that may exist with organizational choice because of the significance of 14 of the 15 possible correlations. Furthermore, the study's results show that most participants think their workplace is supportive of allowing workers to perform their jobs efficiently. Fewer respondents expressed uncertainty about whether the workplace offers this support. Many people also agree that a well-designed workplace fosters creativity and motivation, which helps workers be fully engaged and carry out their responsibilities to the highest standard. Furthermore, the study's conclusions show that a number of significant elements influence how well Organizations for Relief Development (ORD) perform. These include technological developments, better system architecture, the use of digital tools for daily tasks, departmental communication, biometrics, and general organizational efficacy within ORD.

The research results show that improving system development among ORD workers has a big positive effect on how well the organization works. This shows that the business is doing the right thing by constantly improving its existing systems by adding new features. This keeps them up to date and able to meet changing needs. Adding new features happens all the time, which shows that the company is committed to always getting better. The organization makes its processes more efficient and effective by making regular changes and improvements, which makes the work environment more flexible and productive. The study results show that communication between departments among ORD staff greatly improves the operation of the company. The significant t value from our analysis shows that several departments are working together. This finding shows how important it is for information to flow freely between different parts of the organization. This makes the organization more efficient and effective as a whole. The study results demonstrate that the 't' value associated with the utilization of digital tools for daily tasks substantially influences organizational performance. This shows how using both an intranet and an extranet may improve communication and teamwork. It also makes it easier to set up a good system for managing human resources and a full system for managing employee relationships.

The results of the study show that new technology has a big effect on how well an organization works. This shows that hiring qualified people to help the corporation with its technology innovation projects is a good idea. The organization puts a lot of emphasis on keeping track of progress and making its programs better so that people are happy with the mechanisms that are already in place. The research shows that biometrics has a big effect on how well a business does. This confirms that making it easier to access systems, devices, and data, as well as using physical identifying methods like fingerprint recognition technology, is a good thing. This technology turns people's physical traits into unique digital versions.

Conclusion and Recommendations

An insufficient focus on emerging technologies is identified as the main problem by the investigation. In order to improve the handling of humanitarian crises and possibly lessen their effects, the adoption of these new technology may increase hostility amongst communities. Studies have continuously demonstrated a strong relationship between advances in technology and improvements in operational performance. This link demonstrates how important it is for different countries to develop and use new technology in order to progress. As a matter of fact,

technical progress often stems from a shift away from conventional ways of doing things and toward the adoption of technology that are on par with those used in more developed nations. Therefore, the purpose of this study is to examine how technology developments affect an organization's effectiveness in a developing country. Organizations for Relief Development employees made up the study's population, and a case study methodology was used. The investigation's conclusions show that a number of crucial factors affect how well Organizations for Relief Development (ORD) perform. The use of digital tools for ordinary tasks, departmental communication, biometrics, new technologies, enhanced system development, and the general effectiveness of the organization inside ORD are a few examples. Furthermore, the investigation's results point to improved accuracy. Employees at ORD who create new technologies have a greater impact on the organization's performance than those who don't. This demonstrates unequivocally how the business is successfully integrating new features to keep its systems responsive to changing needs. The constant addition of new features demonstrates the company's commitment to ongoing improvement. The company improves its overall efficacy and efficiency by continuously improving and changing its systems. As a result, the workplace becomes more flexible and productive. Additionally, the results of the study indicate that interdepartmental contact among ORD employees significantly increases organizational effectiveness. The remarkable t value we derived from our investigation demonstrates the critical role of departmental teamwork. This finding emphasizes how important it is for different organizational units to be able to freely communicate information. This improves the overall efficacy and efficiency of the company. According to the investigation's findings, the performance of the company is greatly impacted by the "t" value, which is connected to the use of digital technology in day-to-day activities. This illustrates how important it is to use both an intranet and an extranet to improve teamwork and communication. It also aids in the development of a robust human resource management system and an extensive employee relationship management system. Furthermore, the results of the study indicate that the 't' value for technological innovation has a substantial impact on the success of the business. This indicates that hiring competent people to support technical innovation is advantageous to the company. In order to make sure that its constituents are happy with the existing situation, the organization is primarily focused on tracking developments and improving its programs. The results of the study also show that the biometrics "t" value has a major impact on the business's performance. This illustrates the positive effects of implementing physical identification, such as fingerprint recognition technology, and granting instant access to information, devices, and systems. This creative method transforms people's physical attributes into crisp digital pictures. According to the study's findings, technological innovation may be divided into five categories: improving system development, using digital tools for everyday tasks, interdepartmental communication, biometrics, and organizational performance. According to the organization's preferences, these characteristics can be used to determine the many levels of relationships that might exist. The findings of the study point to a robust and favorable relationship between technical innovation and the success of businesses in the ORD. According to this study, the best way to improve organizational structures is through expert training. To encourage creative thinking, it is also advised that ORD give top priority to hiring skilled and competent staff. This kind of innovation aims to greatly increase the operational efficiency of the company. Since their contributions are essential to raising the organization's overall performance, it is imperative that ORD give innovative people top priority. This focus on innovation is especially important for information technology development. Furthermore, the results of this study suggest that more funds ought to be set aside for developmental projects. The findings of the study point to a robust and favorable relationship between technical innovation and the success of businesses in the ORD. According to this study, the best way to improve organizational structures is through expert training. To encourage creative thinking, it is also advised that ORD give top priority to hiring skilled and competent staff. This kind of innovation aims to greatly increase the operational efficiency of the company. Since their contributions are essential to raising the organization's overall performance, it is imperative that ORD give innovative people top priority. This focus on innovation is especially important for information technology development. Furthermore, the results of this study support a greater investment in developing projects.

The study demonstrated a clear and significant correlation between improvements in system development and the overall performance of a company. It was found that companies' operational effectiveness, productivity, and efficiency all went up a lot when they made changes to how they developed their systems. This helpful link shows how important it is to pay for system improvement projects in order to get better results from the organization. This study strongly recommends the creation of specialized training programs for professionals to significantly enhance the effectiveness and efficiency of existing systems. The training is meant to fix problems that already exist and make the system work better by giving professionals more information and abilities. This study says that more money should be set aside for programs that help the economy grow. It also demonstrates a statistically significant beneficial link between interdepartmental communication and the Organization for Relief Development's (ORD)

organizational performance. Effective communication between departments is very important because it makes sure that everyone on the team knows what their job is and how it fits into the bigger picture of the organization's goals. This is because it makes apparent the overall goals and the specific goals of each department. This research also says that using technology wisely can help bring together significant non-governmental organizations (NGOs).

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Conflict of Interest
The authors affirm that no conflicts of interest are linked with this publication. The research was conducted autonomously without financial or non-financial assistance from external entities.

Author Contribution Statement
Both authors meticulously crafted the study, devised the methodology, executed the investigation and data analysis, composed the original manuscript, and undertook the review and editing of the document. Both authors executed every aspect of the research and the development of the manuscript.

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Appendix-Questionnaire

Technological innovation

The organization utilizes qualified employees to improve its technological innovation.
The organization utilizes global positioning systems to compete with other NGOs.
The organization actively improves its systems on an ongoing basis to enhance efficiency.
Electronic data interchange is widely used in organizations to better understand people's needs.
The organization keeping progress and enhancing its programs.
You are satisfied with the systems the organization is currently using.

System Development Enhancement

The organization frequently adds new capabilities to an existing system.
New features are often added to the existing system.
Identified errors are corrected continuously.
The organization modifies systems on a continuous basis to enhance efficiency.
Every department inside the organization has its systems for running efficient operations.
The organization maintains a database to collect data from employees who leave the organization.

Utilizing digital tools

The organization is connected with an intranet.
The organization is connected with an extranet.
The organization has an efficient human resource management system.
The organization has an efficient employee relationship management system.
The organization effectively records employee attendance using a finger system.
The organization conducts online meetings with its field offices.

Interdepartmental Communication

There is ongoing collaboration among the various departments.
There is an efficient flow of information between functions and departments.
Collaboration between departments is encouraged in the organization.
All departments understand their roles and how these affect the overall objective.
The organization relies on the telephone for efficient and effective communication.
The organization conducts regular team meetings.

Biometric

The organization uses physical identifiers to digitally grant an employee access to systems, devices, or data.
The organization utilizes biometrics to identify employees by their fingerprints and faces.
In the organization, the biometric approach converts a person's physical characteristics into a digital image.
The IT support team is usually available to solve system problems whenever they occur.
The IT support team is highly knowledgeable in biometric systems.
Internet failure affects Biometric attendance system performance.

Organizational Performance

You are satisfied with NGOs' performance which might lead them to success.
The strategy used by the NGOs has achieved their goals, vision, and mission
Your organization is achieving the desired level of performance in a given year.
Internal and external factors affect the achievement of NGO goals.
The employees demonstrate a strong sense of commitment to the organization.
The work environment inspires employees to perform their tasks effectively.