Effects of Information and Communication Technology Training on Organizational Performance: A Case Study of World Food Programme, Uganda

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ABSTRACT

Information and Communication Technologies (ICTs) are increasingly central to organizational efficiency, coordination, and accountability, particularly within large humanitarian organizations operating in complex and resource-constrained environments. While substantial investments have been made in ICT infrastructure, evidence suggests that technological adoption alone is insufficient to deliver sustained performance improvements without corresponding investments in human capacity development. This study examines the effects of ICT training on organizational performance using a case study of the World Food Programme (WFP) Uganda Country Office.

The study adopted a descriptive and comparative case study design, drawing on survey data from 40 purposively selected WFP staff across management and operational functions, supplemented by key informant interviews and document review. ICT training was assessed in terms of training access, relevance, and continuity, while organizational performance was measured using indicators related to communication and information flow, operational efficiency, coordination, decision-making timeliness, and service delivery. Data were analyzed using descriptive and comparative techniques, supported by thematic analysis of qualitative data.

The findings indicate that ICT training had a positive effect on organizational performance at WFP Uganda. Notable improvements were observed in communication and information flow, operational efficiency, interdepartmental coordination, and decision-making timeliness following ICT training interventions. However, the results also reveal that uneven access to refresher training, resistance to change, and differences in ICT skill levels constrained the uniformity and sustainability of performance gains.

The study concludes that ICT training is a critical enabler of organizational performance and a necessary complement to ICT investment. It recommends institutionalizing continuous, role-specific ICT training and integrating training initiatives with change management and leadership support mechanisms. The findings contribute empirical evidence to the literature on ICT and organizational performance in humanitarian and developing-country contexts.

Keywords: ICT training; Organizational performance; Humanitarian organizations; World Food Programme; Uganda

INTRODUCTION

Rapid advances in information and communication technologies have transformed the way organizations plan, coordinate, and deliver services. ICTs enable faster communication, improved information management, and enhanced coordination, all of which are essential for organizational effectiveness in increasingly complex environments. For organizations operating in developing countries, ICT adoption is often viewed as a strategic response to globalization, competitive pressures, and demands for accountability and efficiency.

THEORETICAL FRAMEWORK

This study is anchored in three complementary perspectives: the Technology Acceptance Model (TAM), the DeLone and McLean Information Systems Success Model, and organizational learning theory. TAM posits that perceived usefulness and perceived ease of use shape users' attitudes toward adoption of technology, which in

turn influence actual system use. In the context of WFP Uganda, ICT training directly enhances these perceptions by improving staff competence and confidence, thereby strengthening system acceptance.

The DeLone and McLean IS Success Model further explains how system quality, information quality, and service quality influence system use and user satisfaction, ultimately leading to individual and organizational performance impacts. This framework provides a basis for linking ICT training to improved communication, operational efficiency, coordination, and decision-making observed in this study, by positioning training as a key enabler of effective system utilization.

Organizational learning theory complements these models by emphasizing continuous skill development, knowledge sharing, and adaptive capacity as foundations for sustained performance improvement. From this perspective, ICT training is not a one-off intervention but part of an ongoing learning process through which organizations internalize new technologies, refine work practices, and respond to changing operational demands.

Together, these frameworks inform the study's conceptualization of ICT training as a mediating mechanism between technological investment and organizational performance. ICT training enhances user acceptance (TAM), improves system use and satisfaction (IS Success Model), and supports continuous capability development (organizational learning), leading to measurable gains in efficiency, communication, coordination, and decision-making.

Prior studies emphasize that ICT effectiveness depends on user acceptance, perceived usefulness, and organizational alignment (Davis, 1989; Laudon & Laudon, 2016; O'Brien & Marakas, 2011). Models of information systems success further highlight system use and user competence as critical determinants of performance outcomes (Seddon, 1997). In developing-country and public-sector contexts, ICT adoption is increasingly framed as a driver of institutional efficiency and accountability (World Bank, 2016; OECD, 2015), while organizational behavior scholarship underscores the role of training and leadership in translating technological investments into improved performance (Robbins & Judge, 2017).

In Uganda, ICT adoption has been promoted as a key driver of public sector reform and organizational modernization. However, the effective utilization of ICTs depends not only on technological infrastructure but also on the skills, attitudes, and competencies of users. Without adequate training, ICT investments may fail to translate into improved organizational performance. Humanitarian organizations such as the World Food Programme operate in high-pressure environments where timely information and efficient coordination are essential, making ICT training particularly critical.

This study examines the effects of ICT training on organizational performance at WFP Uganda. By comparing organizational performance before and after the introduction of ICT training, the study seeks to contribute empirical evidence on the role of human capacity development in maximizing the benefits of ICT investments.

METHODOLOGY

Research Design

The study employed a descriptive and comparative case study design to examine the effects of information and communication technology (ICT) training on organizational performance at the World Food Programme (WFP) Uganda Country Office. A case study approach was considered appropriate because it allows for an indepth analysis of organizational processes, training interventions, and performance outcomes within a real-life institutional context. The design further enabled comparison of organizational performance conditions before and after the introduction of ICT systems and associated training initiatives, which was central to addressing the study objectives.

Study Area and Organizational Context

The study was conducted at the World Food Programme Uganda Country Office, based in Kampala, which serves as the regional hub for WFP operations in the Great Lakes region. WFP Uganda was selected due to its early and extensive investment in ICT systems, including radio data communication, computerized pipeline management, commodity tracking, and integrated information systems to support logistics, operations, finance,

and human resource management. The organization operates in a complex humanitarian environment where timely information, coordination, and decision-making are critical to performance, making it a suitable case for assessing the role of ICT training.

Population and Sample

The study population comprised employees of WFP Uganda involved in both managerial and operational functions across key departments, including Administration, Finance, Logistics, Operations, Programming, Human Resources, and Technical Support Units. A purposive sampling technique was used to select a sample of 40 respondents. This approach ensured inclusion of staff who had direct experience with organizational operations both prior to and following the introduction of ICT systems, as well as those who had received ICT training. The sample included management-level staff responsible for decision-making and operational staff involved in day-to-day system use, thereby capturing a broad range of perspectives on ICT training and performance.

Data Collection Methods

Data were collected using multiple methods to enhance the depth and credibility of the findings. Structured questionnaires were administered to capture quantitative data on staff exposure to ICT training, frequency of system use, and perceived effects of ICT training on organizational performance indicators such as efficiency, communication, coordination, and service delivery. Semi-structured interviews were conducted with selected key informants to obtain qualitative insights into ICT implementation processes, training effectiveness, challenges encountered, and organizational change dynamics. In addition, documentary review was undertaken, drawing on internal WFP reports, training records, policy documents, and operational manuals to corroborate primary data and provide historical context.

Measurement of Key Variables

The independent variable in the study was ICT training, operationalized in terms of access to training, relevance of training content, frequency of training, and perceived adequacy of skills acquired. The dependent variable was organizational performance, measured using indicators related to operational efficiency, quality and timeliness of communication, coordination of activities, decision-making effectiveness, and overall service delivery. These indicators were assessed primarily through staff perceptions, supported by documentary evidence where available, consistent with organizational performance assessment approaches in public and humanitarian sector studies.

Data Analysis Techniques

Quantitative data from questionnaires were analyzed using descriptive statistics, including frequencies, percentages, and mean scores, to summarize patterns of ICT training and perceived performance outcomes. Comparative analysis was used to assess differences in organizational performance before and after ICT training interventions. Qualitative data from interviews were analyzed thematically, with responses grouped into key themes relating to training effectiveness, performance improvements, and implementation challenges. Findings from different data sources were triangulated to enhance internal validity and ensure a balanced interpretation of results.

Ethical Considerations

Ethical considerations were observed throughout the study. Participation was voluntary, and respondents were informed of the purpose of the study prior to data collection. Confidentiality and anonymity of respondents were assured, and no personal identifiers were included in the analysis or reporting of results. Permission to conduct the study was obtained from the relevant organizational authorities within WFP Uganda.

RESULTS

Respondent Characteristics

The study analyzed responses from 40 WFP Uganda staff drawn from both management and operational levels. Respondents represented key functional departments including Administration, Finance, Logistics, Operations,

Programming, Human Resources, and Technical Support Units. The majority of respondents had worked at WFP for more than five years, ensuring adequate exposure to organizational operations both before and after the introduction of ICT systems. This provided a reliable basis for comparative assessment of ICT training effects.

Table 1. Distribution of respondents by functional area

Department / Unit	Number of Respondents	Percentage (%)
Operations & Logistics	14	35.0
Administration & Finance	9	22.5
Programming	7	17.5
Human Resources	6	15.0
Technical Support	4	10.0
Total	40	100.0

Exposure to ICT Training

RESULTS show that ICT training was widely implemented across WFP Uganda following the introduction of computerized systems. Most respondents reported having received some form of ICT training, although the depth, frequency, and relevance of training varied across departments.

Table 2. Staff exposure to ICT training

ICT Training Indicator	Yes (%)	No (%)
Received formal ICT training	82.5	17.5
Training aligned to job role	70.0	30.0
Refresher training provided	45.0	55.0
Adequate training duration	62.5	37.5

These results indicate that while initial ICT training coverage was relatively high, refresher training and continuous capacity development were less consistently provided.

Effects of ICT Training on Organizational Performance Respondents were asked to assess changes in organizational performance following ICT training using key performance dimensions. The findings demonstrate notable improvements in several areas.

Table 3. Perceived effects of ICT training on organizational performance

| Performance Dimension	Improved (%)	No Change (%)	Declined (%)
Operational efficiency	85.0	12.5	2.5
Communication and information flow	87.5	10.0	2.5
Coordination across departments	80.0	17.5	2.5

Decision-making timeliness	82.5	15.0	2.5
Service delivery effectiveness	77.5	20.0	2.5

The strongest improvements perceived were observed in communication and information flow, followed closely by operational efficiency and decision-making timeliness. These findings suggest that ICT training enabled staff to better utilize information systems for daily operations and coordination.

Comparative Performance Before and After ICT Training

Respondents were asked to compare organizational performance before and after ICT training. A clear majority reported improved performance after the introduction of ICT training programs.

Figure 1. Comparative organizational performance before and after ICT training

Figure 1. Organizational Performance Before and After ICT Training
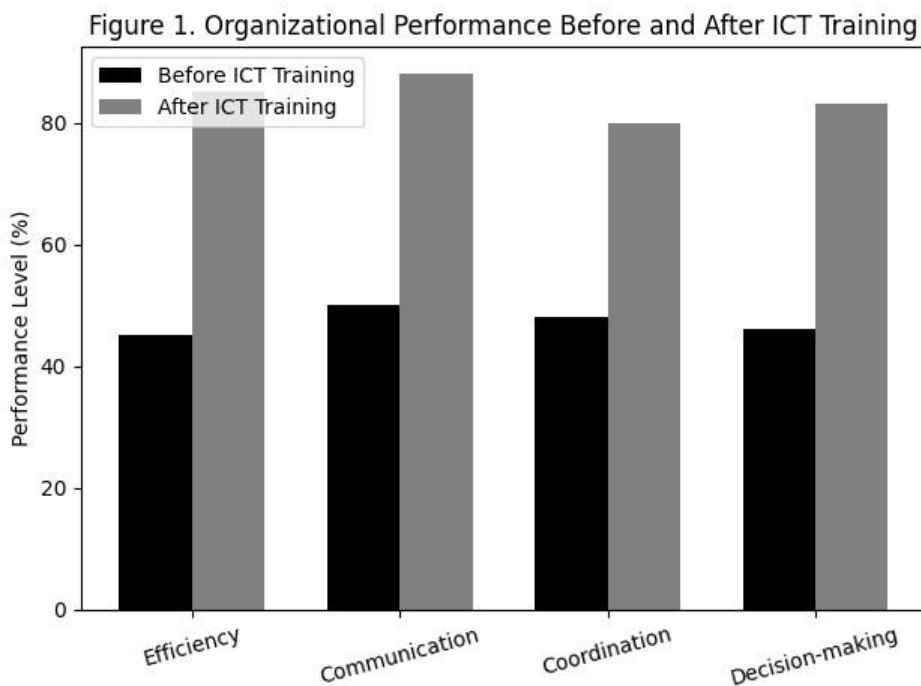
The comparative results indicate that ICT training contributed to measurable improvements in how information was accessed, processed, and used for operational decision-making.

Challenges Affecting ICT Training Effectiveness

Despite the positive outcomes, several challenges were identified that constrained the full benefits of ICT training. These challenges indicate that while ICT training improved performance, sustained impact requires ongoing training, change management, and institutional support.

Table 4. Challenges affecting ICT training effectiveness

Challenge	**Respondents Reporting (%)**
Resistance to change among staff	42.5
Inadequate refresher training	55.0
Uneven ICT skill levels	47.5

Limited time for training	40.0
Technical system complexity	35.0

DISCUSSION

Interpretation of ICT Training Effects on Performance Dimensions

These findings are consistent with broader digital transformation and capacity development frameworks, which stress the importance of continuous skills development and organizational learning (UNDP, 2018). They also align with internal WFP operational guidance emphasizing staff training as a prerequisite for effective system utilization and performance improvement (World Food Programme, 2017; World Food Programme, 2019).

The expanded results provide robust evidence that ICT training contributed meaningfully to improvements in organizational performance at WFP Uganda. As shown in Table 3 and Figure 1, the most pronounced gains were observed in communication and information flow, operational efficiency, and decision-making timeliness. These outcomes suggest that ICT training enhanced staff capacity to utilize information systems for both routine operations and coordination-intensive tasks, which are central to humanitarian logistics and program delivery.

Improved communication and information flow reflect staff ability to access real-time data, prepare timely reports, and share information across functional units. This finding is consistent with organizational performance perspectives that regard information as a strategic asset and highlight user competence as a prerequisite for realizing technological benefits. In the WFP context, effective information exchange is particularly critical given geographically dispersed operations and time-sensitive delivery requirements.

ICT Training, Efficiency, and Decision-Making The reported improvements in operational efficiency and decision-making timeliness (Table 3) indicate that ICT training strengthened employees' ability to use computerized systems for planning, tracking, and monitoring activities. The comparative results presented in Figure 1 demonstrate a clear shift toward higher performance ratings after ICT training, reinforcing the conclusion that training acted as a catalyst for improved system utilization. These findings support human resource development theory, which posits that training enhances employee competence, reduces task-related errors, and increases confidence in technology use.

However, the results also indicate that performance gains were not uniform across departments. Variations in training exposure and system complexity help explain these differences and underscore the importance of aligning ICT training content with specific job roles and functional requirements.

Role of Training Coverage and Continuity Although a large majority of respondents reported having received ICT training (Table 2), fewer indicated access to refresher or follow-up training. This gap highlights a critical issue in ICT capacity development: initial training alone is insufficient to sustain performance gains in dynamic technological environments.

Continuous training and skills upgrading are necessary to accommodate system updates, staff turnover, and evolving operational demands. The findings therefore emphasize the need to institutionalize ICT training as an ongoing organizational function rather than a one-time intervention.

Moderating Factors and Implementation Challenges The challenges identified in Table 4 provide important insight into factors that moderated the effectiveness of ICT training. Resistance to change, uneven ICT skill levels, limited time for training, and system complexity emerged as key constraints. These challenges reflect broader organizational change dynamics and suggest that ICT training initiatives must be complemented by change management strategies, leadership support, and flexible training schedules. Addressing these factors is essential to prevent underutilization of ICT systems and to maximize returns on technological investment.

Conceptual Integration of Findings

Table 5 synthesizes these theoretical perspectives by illustrating how ICT training strengthens user skills and system utilization (TAM and IS Success), which subsequently translate into organizational performance outcomes, moderated by organizational learning processes such as management support, training continuity, and

change management. This integration demonstrates that performance gains arise not only from technology deployment but from sustained learning and user engagement.

Table 5. Conceptual framework linking ICT training and organizational performance

ICT Training	User Skills & System Utilization	Organizational Performance Outcomes	Moderating Factors
Access to training Relevance to job roles Continuity and refresher training	Improved system competence Increased confidence Effective use of ICT applications	Operational efficiency Communication & information flow Coordination Decision-making timeliness	Management support Change management Training follow-up Time availability

Overall, the discussion demonstrates that ICT training is a critical enabler of organizational performance but achieves its full potential only when embedded within a supportive organizational environment. These insights have broader relevance for humanitarian and public-sector organizations seeking to leverage ICT investments for sustained performance improvement.

CONCLUSION

Summary of Key Findings

This study set out to examine the effects of information and communication technology (ICT) training on organizational performance at the World Food Programme Uganda Country Office. Drawing on the expanded results and analysis, the study provides clear evidence that ICT training contributed positively to multiple dimensions of organizational performance. Improvements were most evident in communication and information flow, operational efficiency, coordination across departments, and decision-making timeliness. These gains demonstrate that ICT training enhanced staff capacity to effectively utilize information systems in support of core humanitarian operations.

Implications for Organizational Practice

The findings highlight that ICT training is not merely a technical support function but a strategic organizational investment. High initial training coverage played a critical role in improving performance outcomes; however, the uneven provision of refresher training limited the sustainability and uniformity of these gains. Organizations such as WFP operating in complex and time-sensitive environments should therefore institutionalize continuous ICT training programs that are aligned with specific job roles and operational needs. Integrating ICT training with change management strategies and leadership support is essential to overcoming resistance to change and maximizing system utilization.

Policy and Management Implications

From a policy and management perspective, the study underscores the importance of embedding ICT training within broader organizational reform and human resource development frameworks. Donor-funded and humanitarian organizations should complement investments in ICT infrastructure with adequate resources for training, follow-up support, and performance monitoring. Establishing clear ICT training policies, allocating protected time for staff training, and regularly evaluating training outcomes can strengthen accountability and enhance returns on technological investments.

Contribution and Future Research Directions

The study contributes to the literature on ICT and organizational performance by providing empirical evidence from a humanitarian organization operating in a developing-country context. By demonstrating the mediating role of ICT training between technological investment and performance outcomes, the study reinforces the view that human capacity development is central to digital transformation efforts.

Future research could build on these findings by adopting longitudinal research designs to examine the longterm effects of ICT training on organizational performance. Incorporating objective performance indicators and comparative studies across multiple organizations or country contexts would further strengthen understanding of how ICT training influences performance in humanitarian and public-sector settings.

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