

The Contribution of Information and Communication Technology in Enhancing Worship Services a case of Ryakasinga Archdeaconry, West Ankole Diocese Bushenyi District Uganda

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ABSTRACT

This study examined the contribution of Information and Communication Technology (ICT) in enhancing worship services within Ryakasinga Archdeaconry, West Ankole Diocese, Uganda. It focused on the use of social media platforms, online streaming and broadcasting, and digital communication tools in improving worship attendance, engagement, spiritual growth, and community outreach. A descriptive cross-sectional design employing mixed method was used on a sample size of 187. Quantitative and quantitative data was collected using questionnaires and interview guide.. The findings revealed that ICT significantly contributed to better communication, increased participation, and enriched worship experiences. Online streaming was identified as the strongest predictor of positive worship outcomes, followed by social media use and digital communication tools. Challenges such as technical limitations and digital literacy gaps were also noted. The study concluded that ICT is a critical enabler for modern worship, fostering inclusivity and spiritual connection. The study Recommended expanding ICT infrastructure, training church personnel, and integrating hybrid worship models to maximize reach and engagement.

Key words: Information and Communication Technology and Worship Services

INTRODUCTION

In recent years, the landscape of worship services has undergone significant transformation globally due to technological advancements and changing social dynamics. Traditionally, worship services have been conducted through in-person gatherings where members of a faith community meet physically to participate in prayers, sermons, and other religious rituals. However, challenges such as declining attendance, especially among younger generations, geographic limitations, and the impact of health crises like the COVID-19 pandemic have compelled religious institutions to explore alternative means of engagement (Smith & Denton, 2020; Pew Research Center, 2019). Information and Communication Technology (ICT) has emerged as a critical tool in this transition, enabling churches and religious organizations to maintain and even expand their reach beyond physical boundaries (Campbell, 2018; Cheong & Ess, 2020). Therefore, there is a pressing need to investigate how ICT can be effectively utilized to improve worship services' quality, accessibility, and congregational engagement within this context.

THEORETICAL REVIEW

The study was guided by the Diffusion of Innovations Theory, originally developed by Everett M. Rogers in 1962, which explained how new ideas, practices, or technologies spread within and across social systems over time. The theory categorized adopters into five groups—innovators, early adopters, early majority, late majority, and laggards reflecting the different rates at which individuals or organizations embraced innovations, with innovators and early adopters being pioneers and laggards the last to adopt. Rogers identified five key attributes that influenced the adoption of an innovation: relative advantage, referring to the degree to which an innovation was perceived as better than the existing idea or practice; compatibility, or how consistent the innovation was with the values, past experiences, and needs of potential adopters; complexity, which indicated how difficult the innovation was to understand and use; trial ability, the extent to which an

innovation could be tested or experimented with before full adoption; and observability, the degree to which the results of the innovation were visible to others.

Review of Related Literature

Use of social media platforms on the quality and participation of worship services.

The study conducted by Afolayan and Alimi (2019), titled "Qualitative Study of the Use of Social Media by Church Personnel for Religious Activities in Ibadan, Nigeria", and utilized qualitative methods including interviews and focus group discussions with church leaders and members. The research found that social media platforms like Whatsapp and Facebook significantly contributed to disseminating scripture, announcements, and virtual fellowships. These tools enhanced worship participation by allowing real-time interaction and the sharing of religious content. The study concluded that while social media improves engagement, challenges such as internet costs and power supply hinder its full potential. It recommended capacity building for church personnel to enhance social media effectiveness in spiritual contexts (Afolayan & Alimi, 2019).

The study conducted by Agboola et al. (2020), titled "Assessing the Impact of Technology on Church Services and Youth Engagement", employed a survey-based approach to evaluate how digital platforms, especially social media, influence youth participation and service delivery. Findings indicated that over 72% of respondents felt more connected to the church due to social media use, and 96% observed increased youth attendance in online church activities. The study concluded that the integration of social media significantly boosts inclusivity, engagement, and service quality, and recommended the strategic use of such platforms to retain younger congregants (Agboola et al., 2020).

The study conducted by Walker (2021), titled "The Pandemic Nearly Shuttered My Church. Technology Saved It", was a narrative reflection and case study of the Science Hill Friends Meeting church in North Carolina. The church adopted Facebook Live and Zoom to sustain and expand its services during the COVID-19 pandemic. Followers on the church's Facebook page doubled, and virtual engagement replaced physical attendance effectively. The study emphasized that social media not only maintained worship services during crises but also expanded spiritual reach and community bonding (Walker, 2021).

The study conducted by Kıcı and Bulut (2020), titled "Holy Tweets: Exploring the Sharing of Quran on Twitter", analyzed over 2.6 million Quran-related tweets using a mixed-methods design. While centered on Islam, the findings are relevant across faith traditions, indicating that social media platforms allow for spiritual sharing, participation, and identity formation. The study showed that believers use social media as a form of spiritual expression and interaction, reinforcing the quality and relevance of online religious engagement (Kıcı & Bulut, 2020).

The study conducted by Chigona et al. (2016), titled "The Church Online: The Impact of Online Social Networks on Church Congregations", investigated small Christian congregations in Johannesburg, South Africa. Using surveys and interviews, the researchers found that online social networks like Facebook facilitated communication between clergy and congregants and increased member involvement in religious programs. The study concluded that social media promotes accessibility and participation, and recommended its strategic adoption to enhance worship services and spiritual community life (Chigona et al., 2016).

Online streaming and broadcasting and the accessibility and attendance of worship services.

The study conducted by Campbell and Tsuria (2015), titled "Digital Religion: Understanding Religious Practice in New Media Worlds", used a qualitative content analysis to explore how religious organizations integrate online streaming to extend their spiritual services. The study found that live broadcasts via YouTube, Facebook Live, and church websites created new spaces for worship, especially among congregants unable to attend physically. The researchers concluded that online worship enhances inclusivity and broadens access, particularly for the elderly, people with disabilities, and diaspora communities. The study recommended churches establish structured online worship teams to sustain digital ministry.

The study conducted by Cheong et al. (2016), "Digital Mediation of Religious Services in Multicultural Communities", employed ethnographic methods in several multicultural churches in the U.S. and Singapore. Their findings revealed that live streaming not only improved accessibility to worship but also strengthened the spiritual connection for remote and migrant members. Online broadcasting allowed congregants to maintain spiritual participation regardless of geographical boundaries, enhancing both attendance and continuity of worship. The study recommended that religious leaders integrate multimedia training to improve digital worship delivery.

The study conducted by Barna Group (2020), during the peak of the COVID-19 pandemic, assessed how churches in the U.S. adapted to online streaming. Their national survey revealed that churches that switched to live-streamed services experienced a 30–40% increase in overall worship attendance, including participation from previously inactive members. The study concluded that online streaming helped break physical and psychological barriers to participation, and advised religious institutions to maintain hybrid models post-pandemic to ensure sustained accessibility.

The study conducted by Ndagijimana (2021), titled "The Effectiveness of Virtual Church Services during the COVID-19 Pandemic in Rwanda", used a mixed-methods approach combining surveys and interviews from urban congregations in Kigali. The study found that virtual services via Facebook and Zoom increased weekly attendance by 50% during lockdowns. However, accessibility was limited in rural areas due to poor internet infrastructure. The study concluded that online worship can substantially increase attendance and outreach if supported by digital infrastructure and digital literacy initiatives.

The study conducted by Anning-Dorson and Agyei (2022), titled "Digital Worship and Religious Engagement in Ghanaian Churches", used case studies and in-depth interviews to evaluate the impact of digital broadcasting. The results showed that churches using digital streaming experienced higher retention of younger congregants and increased diaspora participation. It concluded that digital broadcasting enhances convenience, flexibility, and reach, although it may reduce interpersonal fellowship. The authors recommended that churches balance in-person and digital services to optimize participation.

Digital communication tools and the effectiveness of communication and engagement during worship services.

The study conducted by Baker and Wright (2017), titled "Digital Communication Tools in Religious Settings: A Study of Church Websites and Social Media", employed a survey methodology to assess the use of church websites, email newsletters, and social media in enhancing communication between clergy and congregants. The findings indicated that digital communication tools increased engagement by providing regular, real-time updates, prayer requests, and event notifications. The study concluded that these tools fostered a sense of community and connection, especially for individuals unable to attend in person, and recommended churches adopt a comprehensive digital communication strategy to strengthen relationships within their congregations.

The study conducted by Koh and Kim (2018), titled "Social Media as a Tool for Religious Communication: A Case Study of Korean Churches", utilized qualitative interviews and focus groups to explore the role of social media in church communication. Their findings suggested that platforms like Facebook and Instagram enhanced congregation engagement by enabling direct communication between clergy and congregants, allowing the sharing of sermon highlights, prayer requests, and event invitations. The study concluded that social media tools helped create more interactive and participatory worship experiences, especially for younger, tech-savvy individuals, and recommended integrating these tools into regular worship communication to improve engagement and outreach.

The study conducted by Hutchings and Sharma (2019), titled "Communication and Engagement through Digital Platforms: A Comparative Study of Traditional and Online Church Services", used a mixed-methods approach combining surveys and participant observation to assess how digital tools were used in worship services in both traditional and online settings. The study revealed that congregants participating in online services via digital platforms such as Zoom, YouTube, and Facebook Live felt more engaged and included in discussions and worship through the interactive features (comments, live prayer requests, polls). The

researchers concluded that digital tools significantly enhanced engagement during worship services by allowing greater congregational interaction and real-time participation. They recommended churches invest in training both clergy and congregants on how to effectively use these tools for better engagement.

The study conducted by Rajab and Mustapha (2020), titled "Enhancing Worship Experience through Mobile Apps: The Case of Nigerian Churches", focused on the adoption of mobile apps for church communication. Using surveys and case studies, the study found that churches using mobile applications for announcements, live prayer requests, and interactive sermon notes saw an increase in the level of engagement among their congregants, especially younger members. The findings indicated that these digital tools facilitated a more immersive worship experience by offering features such as push notifications and on-demand sermon content, which allowed congregants to engage at their own convenience. The study recommended that churches continue to develop and improve mobile apps to increase engagement and participation.

The study conducted by Martínez and Fernández (2021), titled "Digital Tools and Faith Engagement in Spain: A Study of Online Worship Communication", employed a quantitative approach using surveys to evaluate the use of digital communication tools in Spanish churches. The findings suggested that digital tools, particularly apps and social media platforms, played a critical role in improving communication between church leaders and their communities, especially in terms of providing quick updates, fostering discussions, and engaging people in prayer requests and faith activities. The study concluded that these tools have the potential to increase participation in worship services and create a sense of belonging among members. The authors recommended further research into how these tools could be integrated into traditional worship services to maintain the spiritual engagement of all congregants, both online and offline.

METHODOLOGY

In this study, a descriptive cross-sectional research design was adopted, using a mixed methods approach. The descriptive cross-sectional design was suitable for collecting data at a single point in time to describe and analyze current conditions, opinions, and behaviors related to the use of ICT in worship services. This design enabled the researcher to assess the extent of ICT adoption and its perceived impact without manipulating the environment.

The mixed methods approach, which combined both quantitative and qualitative techniques, allowed for a comprehensive understanding of the research problem. Quantitative data were collected using structured questionnaires to capture measurable aspects such as the frequency of ICT use, while qualitative data were gathered through interviews to explore in-depth views and experiences of church leaders and congregants. This combination enhanced the validity of the findings and provided richer insights into how ICT was transforming worship services in the study area.

Sample size determination and sampling method.

A sample size of 187 respondents was determined from a total population of 350 individuals using Slovin's formula, which was suitable when the behavior of the population was largely unknown. The formula was stated as:

$$n = \frac{N}{1 + N(e)^2}$$

Where:

- n = sample size
- N = population size (350)
- e = margin of error (commonly 0.05 for 95% confidence level)

$$n = \frac{350}{1 + 350(0.05)^2}$$

$$n = \frac{350}{1 + 350(0.0025)}$$

$$n = \frac{350}{1 + 0.875}$$

$$n = \frac{350}{1.875}$$

$$n = 186.67$$

Therefore, a sample size of 187 respondents was selected from a population of 350 using Slovin's formula with a 5% margin of error.

Sampling Techniques

Simple Random Sampling: This technique was used to select congregant participants. Simple random sampling minimized selection bias and ensured each congregant in the study area had an equal chance of participation. This method allowed for diverse views among congregants on ICT's role in worship services (Kothari, 2004; Creswell, 2014).

Purposive Sampling: Church leaders were selected using purposive sampling due to their unique role and knowledge concerning ICT policies and practices within the church. This targeted selection ensured that the study gathered in-depth perspectives from those directly involved in decision-making about ICT use in worship (Patton, 2002; Etikan, Musa, & Alkassim, 201

Data Analysis

Quantitative Analysis: Quantitative data collected from congregant questionnaires were analyzed using descriptive statistics, specifically frequencies and percentages. This approach summarized congregants' responses effectively, providing a clear overview of their ICT usage and attitudes toward its role in worship (Creswell, 2014; Pallant, 2020).

Qualitative Analysis: Qualitative data from interviews with church leaders were analyzed using thematic analysis. Significant statements were quoted to illustrate key themes, offering in-depth insights into how leaders perceived the impact of ICT on worship services. This analysis helped identify common perspectives and concerns, enhancing the study's understanding of ICT's influence on worship (Braun & Clarke, 2006; Guest, MacQueen, & Namey, 2012).

RESULTS AND DISCUSSION

Demographic Characteristics of Respondents

Variable	Category	Frequency (n)	Percentage (%)
Age	18–25	34	18.2%
	26–35	52	27.8%
	36–45	48	25.7%
	46–55	33	17.6%
	Above 55	20	10.7%
	Total	187	100%
Gender	Male	94	50.3%

	Female	89	47.6%
	Prefer not to say	4	2.1%
	Total	187	100%
Role in the Church	Clergy	25	13.4%
	Choir Member	32	17.1%
	Lay Leader	41	21.9%
	Ordinary Church Member	89	47.6%
	Total	187	100%
Education Level	Primary	15	8.0%
	Secondary	39	20.9%
	Tertiary	48	25.7%
	University	58	31.0%
	Postgraduate	27	14.4%
	Total	187	100%
Church Membership Time	Less than 1 year	12	6.4%
	1–5 years	41	21.9%
	6–10 years	56	29.9%
	More than 10 years	78	41.7%
	Total	187	100%

Table 4.1 presents the demographic characteristics of the 187 respondents who participated in the study from Ryakasinga Archdeaconry. Regarding age distribution, the largest group was respondents aged 26–35 years, with 52 respondents (27.8%), followed by those aged 36–45 years who numbered 48 (25.7%). The age group 18–25 years comprised 34 respondents (18.2%), while 33 respondents (17.6%) were aged 46–55 years. The smallest group was respondents above 55 years, totaling 20 individuals (10.7%). This shows that the church community engages a broad range of ages, with a strong presence of young and middle-aged adults.

In terms of gender, there was a nearly equal representation with 94 males (50.3%) and 89 females (47.6%), while a small portion, 4 respondents (2.1%), preferred not to disclose their gender. This balance indicates inclusive participation across genders in the church’s ICT-related activities.

The roles held by respondents within the church were diverse. Ordinary church members formed the largest group with 89 respondents (47.6%), followed by lay leaders at 41 respondents (21.9%), choir members numbering 32 (17.1%), and clergy members making up the smallest group with 25 respondents (13.4%). This distribution reflects active involvement from both leadership and general congregation members.

Regarding education, most respondents had attained university education, accounting for 58 individuals (31.0%), with tertiary education holders at 48 (25.7%). Those with secondary education numbered 39 (20.9%), postgraduate education holders were 27 (14.4%), and respondents with only primary education were the least represented at 15 (8.0%). The generally high education level suggests that the respondents are well-positioned to engage effectively with ICT tools in worship services.

Lastly, the duration of church membership varied, with the majority of respondents reporting membership of more than 10 years (78 respondents, 41.7%). Those who had been members for 6–10 years accounted for 56 respondents (29.9%), members with 1–5 years numbered 41 (21.9%), and the least represented group was

those with less than one year of membership, totaling 12 respondents (6.4%). This indicates a committed and stable congregation with many long-term members.

Effect Of Social Media Platforms On Worship Quality And Participation

This section presents the extent to which social media platforms (such as Whatsapp, Facebook, and YouTube) are used by the church and how they impact participation and communication in worship services.

Table 4.2: Effect of Social Media Platforms on Worship Services

Statement	SD	D	N	A	SA	Mean	Std. Dev
B1. Church uses social media	6 (3.2%)	9 (4.8%)	20 (10.7%)	64 (34.2%)	88 (47.1%)	4.17	1.01
B2. Social media increases participation	7 (3.7%)	11 (5.9%)	19 (10.2%)	71 (38.0%)	79 (42.2%)	4.09	1.04
B3. Announcements are accessible	5 (2.6%)	12 (6.4%)	22 (11.6%)	68 (36.0%)	82 (43.4%)	4.11	1.01
B4. Enhances spiritual experience	8 (4.3%)	15 (8.0%)	33 (17.6%)	59 (31.6%)	72 (38.5%)	3.92	1.12
B5. Encourages regular attendance	9 (4.8%)	10 (5.4%)	31 (16.6%)	61 (32.6%)	76 (40.6%)	3.99	1.10

Table 4.2 presents the effect of social media platforms on worship services in Ryakasinga Archdeaconry. The findings reveal a generally positive perception of social media's role in enhancing worship participation and experience.

For the statement "Church uses social media" (B1), 6 (3.2%) strongly disagreed, 9 (4.8%) disagreed, 20 (10.7%) were neutral, 64 (34.2%) agreed, and 88 (47.1%) strongly agreed. The mean score of 4.17 (SD = 1.01) indicates strong agreement that the church actively uses social media platforms.

Regarding "Social media increases participation" (B2), 7 (3.7%) strongly disagreed, 11 (5.9%) disagreed, 19 (10.2%) were neutral, 71 (38.0%) agreed, and 79 (42.2%) strongly agreed. With a mean of 4.09 (SD = 1.04), most perceive social media as boosting participation in worship services.

On the accessibility of "Announcements are accessible through social media" (B3), 5 (2.6%) strongly disagreed, 12 (6.4%) disagreed, 22 (11.6%) were neutral, 68 (36.0%) agreed, and 82 (43.4%) strongly agreed. The mean score of 4.11 (SD = 1.01) reflects high agreement on social media improving access to church announcements.

For "Enhances spiritual experience" (B4), 8 (4.3%) strongly disagreed, 15 (8.0%) disagreed, 33 (17.6%) were neutral, 59 (31.6%) agreed, and 72 (38.5%) strongly agreed. The mean of 3.92 (SD = 1.12) suggests moderately strong agreement on social media's contribution to spiritual growth.

Lastly, on "Encourages regular attendance" (B5), 9 (4.8%) strongly disagreed, 10 (5.4%) disagreed, 31 (16.6%) were neutral, 61 (32.6%) agreed, and 76 (40.6%) strongly agreed. The mean of 3.99 (SD = 1.10) shows a positive view of social media motivating regular attendance.

During interviews, respondents revealed that the church actively uses social media platforms like Facebook, Whatsapp, and Instagram to support worship services. One participant noted,

"Whatsapp groups have become our main avenue to share daily devotionals and keep members informed about service times." Many agreed that social media has increased participation, with one stating,

“Even those who cannot come to church physically still feel part of the worship through Facebook live sessions and shared prayers.” However, some challenges were raised, such as limited internet access and digital literacy. A church leader shared,

“Some elderly members struggle with technology, and this limits their engagement on social media.” To improve, respondents suggested more organized content management:

If we had a dedicated social media team posting regularly, more people would be involved.” Many also linked social media use to stronger community bonding and spiritual growth:

“The prayer groups on Whatsapp have created a closer church family even beyond Sunday services.”

Influence Of Online Streaming On Accessibility And Attendance

This section evaluates the influence of online streaming (live or recorded) on worship service access and attendance, especially for individuals unable to attend physically.

Table 4.3: Influence of Online Streaming and Broadcasting

Statement	SD	D	N	A	SA	Mean	Std. Dev
C1. Church provides live/recorded services	5 (2.7%)	10 (5.4%)	25 (13.4%)	76 (40.6%)	71 (38.0%)	4.06	0.98
C2. Improves access for distant/ill	6 (3.2%)	11 (5.9%)	23 (12.3%)	64 (34.2%)	83 (44.4%)	4.11	1.04
C3. Increases participation	7 (3.7%)	13 (7.0%)	22 (11.8%)	68 (36.4%)	77 (41.2%)	4.04	1.07
C4. Audio-visual quality meets expectations	10 (5.4%)	15 (8.0%)	36 (19.2%)	61 (32.6%)	65 (34.8%)	3.83	1.15
C5. Affects physical attendance	29 (15.4%)	43 (22.9%)	37 (19.7%)	41 (21.8%)	38 (20.2%)	3.09	1.37

Table 4.3 presents respondents’ perceptions of the influence of online streaming and broadcasting on worship service accessibility and attendance in Ryakasinga Archdeaconry. The results show generally positive views, though some variation exists regarding physical attendance.

For the statement “Church provides live/recorded services” (C1), 5 (2.7%) strongly disagreed, 10 (5.4%) disagreed, 25 (13.4%) were neutral, 76 (40.6%) agreed, and 71 (38.0%) strongly agreed. The mean score of 4.06 (SD = 0.98) indicates a strong consensus that the church offers online streaming or recorded services.

Regarding “Improves access for distant/ill members” (C2), 6 (3.2%) strongly disagreed, 11 (5.9%) disagreed, 23 (12.3%) were neutral, 64 (34.2%) agreed, and 83 (44.4%) strongly agreed. With a mean of 4.11 (SD = 1.04), most respondents believe streaming improves service access for those unable to attend physically.

For “Increases participation” (C3), 7 (3.7%) strongly disagreed, 13 (7.0%) disagreed, 22 (11.8%) were neutral, 68 (36.4%) agreed, and 77 (41.2%) strongly agreed. The mean of 4.04 (SD = 1.07) reflects the positive role of streaming in enhancing participation.

On the quality of the audiovisual experience, “Audio-visual quality meets expectations” (C4) received more varied responses: 10 (5.4%) strongly disagreed, 15 (8.0%) disagreed, 36 (19.2%) were neutral, 61 (32.6%) agreed, and 65 (34.8%) strongly agreed. The mean score of 3.83 (SD = 1.15) suggests moderate satisfaction with online service quality.

Finally, the statement “Affects physical attendance” (C5) had the most divided responses: 29 (15.4%) strongly disagreed, 43 (22.9%) disagreed, 37 (19.7%) were neutral, 41 (21.8%) agreed, and 38 (20.2%) strongly agreed. The mean of 3.09 (SD = 1.37) indicates mixed opinions on whether online availability reduces physical church attendance.

During interviews, participants revealed that online streaming plays a vital role in making worship accessible. One respondent said,

“Live-streaming has allowed my elderly parents to attend service from their home, which is a blessing.” Several mentioned that online services help those unable to attend physically due to illness or distance. Regarding physical attendance, opinions varied; one participant explained,

“For some, online services are a substitute, but many still prefer the atmosphere of physical church.” Technical challenges were noted, with a media team member commenting,

“We sometimes experience buffering and poor audio because of unreliable internet and equipment.” The impact on remote attendees was clear:

“Streaming services keep me spiritually connected when I’m away on work trips.” Suggestions for improvement included investing in better technology and training:

“We need better cameras and sound systems to make online worship more engaging.”

Impact Of Digital Communication Tools On Worship Engagement

This section evaluates how digital communication tools (e.g., SMS, email, microphones, and projectors) enhance participation and engagement during services.

Table 4.4: Digital Communication Tools and Worship Engagement

Statement	SD	D	N	A	SA	Mean	Std. Dev
D1. Church uses SMS/email/apps	6 (3.2%)	11 (5.9%)	26 (13.9%)	74 (39.6%)	70 (37.4%)	4.02	1.02
D2. ICT enables timely communication	7 (3.7%)	9 (4.8%)	26 (13.9%)	66 (35.3%)	79 (42.2%)	4.07	1.04
D3. Microphones/screens/projectors enhance participation	5 (2.7%)	9 (4.8%)	18 (9.6%)	71 (38.0%)	84 (44.9%)	4.18	0.97
D4. ICT promotes interaction and feedback	8 (4.3%)	13 (7.0%)	33 (17.6%)	64 (34.2%)	69 (36.9%)	3.93	1.10
D5. ICT makes services more engaging	6 (3.2%)	11 (5.8%)	18 (9.5%)	72 (38.1%)	82 (43.4%)	4.13	1.02

Table 4.4 presents the influence of digital communication tools on worship engagement in Ryakasinga Archdeaconry. The data show that most respondents perceive digital tools as enhancing communication and participation during worship services.

For the statement “Church uses SMS/email/apps” (D1), 6 (3.2%) strongly disagreed, 11 (5.9%) disagreed, 26 (13.9%) were neutral, 74 (39.6%) agreed, and 70 (37.4%) strongly agreed. The mean score of 4.02 (SD = 1.02) indicates a generally positive view of digital messaging tools used by the church.

Regarding “ICT enables timely communication” (D2), 7 (3.7%) strongly disagreed, 9 (4.8%) disagreed, 26 (13.9%) were neutral, 66 (35.3%) agreed, and 79 (42.2%) strongly agreed. With a mean of 4.07 (SD = 1.04), most respondents believe that ICT facilitates prompt communication about church activities.

For “Microphones/screens/projectors enhance participation” (D3), 5 (2.7%) strongly disagreed, 9 (4.8%) disagreed, 18 (9.6%) were neutral, 71 (38.0%) agreed, and 84 (44.9%) strongly agreed. The mean score of 4.18 (SD = 0.97) reflects strong agreement that audiovisual tools improve worship participation.

On the statement “ICT promotes interaction and feedback” (D4), 8 (4.3%) strongly disagreed, 13 (7.0%) disagreed, 33 (17.6%) were neutral, 64 (34.2%) agreed, and 69 (36.9%) strongly agreed. The mean of 3.93 (SD = 1.10) suggests moderately strong agreement on ICT’s role in fostering interaction.

Lastly, for “ICT makes services more engaging” (D5), 6 (3.2%) strongly disagreed, 11 (5.8%) disagreed, 18 (9.5%) were neutral, 72 (38.1%) agreed, and 82 (43.4%) strongly agreed. The mean score of 4.13 (SD = 1.02) indicates a positive perception of ICT enhancing the overall worship experience.

During interviews, respondents revealed extensive use of SMS, emails, and church apps for communication. A respondent said,

“SMS is the most reliable way to reach everyone, even those without smartphones.” Most felt these tools effectively engage the congregation:

“I always get reminders about church events through emails, which helps me plan better.” Digital tools have enhanced interaction, as one member described,

“I can send prayer requests via the church app and get quick responses from leaders.” Barriers such as poor network coverage were noted,

“Some rural members miss messages because of bad reception.” Language and digital skills gaps were also mentioned. To enhance communication, respondents recommended:

“Training sessions on how to use church apps and sending messages in our local language would be helpful.”

Contribution Of Ict To Worship Service Outcomes

This section summarizes the overall benefits of ICT in improving attendance, satisfaction, spiritual growth, community bonding, and inclusivity within worship services.

Table 4.5: Contribution of ICT to Worship Outcomes

Statement	SD	D	N	A	SA	Mean	Std. Dev
E1. ICT led to increased attendance	8 (4.3%)	13 (7.0%)	29 (15.5%)	66 (35.3%)	71 (38.0%)	3.96	1.09
E2. ICT enhances worship experience	6 (3.2%)	10 (5.4%)	29 (15.5%)	63 (33.7%)	79 (42.2%)	4.06	1.04
E3. ICT contributes to spiritual growth	7 (3.7%)	12 (6.4%)	33 (17.6%)	61 (32.6%)	74 (39.6%)	3.98	1.08
E4. ICT strengthens community bonding	9 (4.8%)	15 (8.0%)	37 (19.8%)	59 (31.6%)	67 (35.8%)	3.86	1.14
E5. ICT expands outreach to non-attendees	6 (3.2%)	9 (4.8%)	24 (12.8%)	68 (36.4%)	80 (42.8%)	4.11	—

Table 4.5 presents the perceived contributions of ICT to worship service outcomes in Ryakasinga Archdeaconry. The findings indicate that respondents generally agree ICT has positively influenced attendance, worship experience, spiritual growth, community bonding, and outreach.

For the statement “ICT led to increased attendance” (E1), 8 (4.3%) strongly disagreed, 13 (7.0%) disagreed, 29 (15.5%) were neutral, 66 (35.3%) agreed, and 71 (38.0%) strongly agreed. The mean score of 3.96 (SD = 1.09) reflects a positive perception of ICT’s impact on increasing worship attendance.

Regarding “ICT enhances worship experience” (E2), 6 (3.2%) strongly disagreed, 10 (5.4%) disagreed, 29 (15.5%) were neutral, 63 (33.7%) agreed, and 79 (42.2%) strongly agreed. The mean of 4.06 (SD = 1.04) shows that most respondents feel ICT improves the overall worship experience.

For “ICT contributes to spiritual growth” (E3), 7 (3.7%) strongly disagreed, 12 (6.4%) disagreed, 33 (17.6%) were neutral, 61 (32.6%) agreed, and 74 (39.6%) strongly agreed. The mean of 3.98 (SD = 1.08) indicates that ICT is seen as a significant factor in fostering spiritual growth.

On the statement “ICT strengthens community bonding” (E4), 9 (4.8%) strongly disagreed, 15 (8.0%) disagreed, 37 (19.8%) were neutral, 59 (31.6%) agreed, and 67 (35.8%) strongly agreed. The mean score of 3.86 (SD = 1.14) suggests a moderately strong agreement that ICT enhances community cohesion.

Finally, for “ICT expands outreach to non-attendees” (E5), 6 (3.2%) strongly disagreed, 9 (4.8%) disagreed, 24 (12.8%) were neutral, 68 (36.4%) agreed, and 80 (42.8%) strongly agreed. The mean of 4.11 highlights the strong belief that ICT broadens the church’s reach to those unable to attend physically.

During interviews, participants revealed that ICT has significantly enriched the overall worship experience. One participant shared,

“Using projectors and microphones makes sermons clearer and more engaging.” ICT also helps increase attendance and inclusivity:

“Offering both physical and online services means everyone can participate, no matter where they are.” Spiritual growth and community bonding have improved through ICT; a respondent remarked,

“Virtual Bible studies and prayer meetings have deepened my faith and connected me with others.” Success stories included,

“During the lockdown, online services kept our faith alive and even attracted new members.” Looking ahead, many envision expanding ICT’s role:

“We hope to have more interactive online services and use apps to bring younger people closer to church.”

Correlation Between Ict Components And Worship Service Outcomes

This section presents the Pearson correlation analysis between ICT components (independent variables) and worship service outcomes (dependent variables). The analysis examines whether the use of ICT tools enhances aspects of worship such as attendance, experience, spiritual growth, and outreach.

Table 4.6: Correlation between ICT Components and Worship Service Outcomes

Variable	Increased Worship Attendance	Enhanced Worship Experience	Spiritual Growth & Bonding	Outreach & Inclusivity
Use of Social Media Platforms				
• Pearson Correlation	.670**	.610**	.590**	.650**

• Sig. (2-tailed)	.000	.000	.000	.000
• N	187	187	187	187
Online Streaming & Broadcasting				
• Pearson Correlation	.730**	.690**	.660**	.710**
• Sig. (2-tailed)	.000	.000	.000	.000
• N	187	187	187	187
Digital Communication Tools				
• Pearson Correlation	.700**	.680**	.640**	.690**
• Sig. (2-tailed)	.000	.000	.000	.000
• N	187	187	187	187

Notes:

- **Pearson Correlation** values indicate the strength and direction of linear relationships.
- **Sig. (2-tailed)** values of **.000** denote highly significant correlations at the 0.01 level ($p < .01$).
- **N** is the number of respondents (187).

Table 4.6 presents the Pearson correlation coefficients measuring the relationships between various ICT components and worship service outcomes in Ryakasinga Archdeaconry. The independent variables include the use of social media platforms, online streaming and broadcasting, and digital communication tools. The dependent variables are increased worship attendance, enhanced worship experience, spiritual growth and community bonding, and outreach and inclusivity.

The findings reveal that the use of social media platforms is strongly and positively correlated with all worship outcomes. Specifically, the correlation coefficients are 0.670 for increased worship attendance, 0.610 for enhanced worship experience, 0.590 for spiritual growth and bonding, and 0.650 for outreach and inclusivity. These results indicate that greater utilization of social media platforms is associated with improvements in all facets of worship service quality and participation.

Similarly, online streaming and broadcasting demonstrate even stronger positive correlations with worship outcomes. The Pearson correlation values are 0.730 for increased attendance, 0.690 for worship experience, 0.660 for spiritual growth and bonding, and 0.710 for outreach and inclusivity. This suggests that online streaming plays a particularly significant role in enhancing accessibility and engagement during worship services.

Furthermore, digital communication tools such as SMS, email, and audiovisual aids also exhibit strong positive relationships with the worship outcomes. The correlations are 0.700 for increased attendance, 0.680 for enhanced worship experience, 0.640 for spiritual growth and bonding, and 0.690 for outreach and inclusivity. This underscores the critical role these tools play in fostering communication, interaction, and connection within the church community.

All the reported correlations are statistically significant at the 0.01 level (2-tailed), with p-values of 0.000, indicating high confidence in these relationships. The sample size of 187 respondents lends robustness to these findings.

Regression Analysis

This section presents the results of the regression analysis conducted to determine the influence of ICT components on worship service outcomes in Ryakasinga Archdeaconry. The independent variables included use of social media platforms, online streaming and broadcasting, and digital communication tools. The

dependent variable was a composite measure of worship service outcomes, including increased worship attendance, enhanced worship experience, spiritual growth and community bonding, and expanded outreach and inclusivity.

The regression model tests how well the ICT components predict improvements in worship service outcomes.

Table 4.7: Summary of Multiple Regression Analysis Predicting Worship Service Outcomes

Predictor Variables	Un standardized Coefficients (B)	Standard Error (SE)	Standardized Coefficients (β)	t-value	p-value
Constant	0.528	0.183	—	2.88	0.004
Use of Social Media Platforms	0.342	0.071	0.310	4.81	0.000
Online Streaming & Broadcasting	0.413	0.065	0.384	6.35	0.000
Digital Communication Tools	0.288	0.060	0.270	4.80	0.000

Table 4.7 presents the results of the multiple regression analysis predicting worship service outcomes based on three ICT components: use of social media platforms, online streaming and broadcasting, and digital communication tools. The model assesses how these predictors individually contribute to explaining variations in worship outcomes.

The constant term has an un standardized coefficient (B) of 0.528 with a standard error of 0.183, and it is statistically significant ($t = 2.88$, $p = 0.004$). This indicates the baseline level of worship service outcomes when all predictor variables are at zero.

Among the predictors, online streaming and broadcasting has the strongest influence on worship service outcomes, with a standardized coefficient (β) of 0.384. It is highly significant ($t = 6.35$, $p < 0.001$), meaning that for every one-unit increase in online streaming and broadcasting, worship outcomes increase by 0.413 units when other variables are held constant.

The use of social media platforms is also a significant predictor, with a standardized coefficient (β) of 0.310 and an un standardized coefficient of 0.342 ($t = 4.81$, $p < 0.001$). This suggests that social media use positively affects worship outcomes, although its impact is somewhat less than that of online streaming.

Lastly, digital communication tools contribute significantly as well, with a standardized coefficient (β) of 0.270 and an un standardized coefficient of 0.288 ($t = 4.80$, $p < 0.001$). This shows that improved use of digital communication correlates with better worship service outcomes.

All three ICT components independently and positively predict improvements in worship attendance, experience, spiritual growth, community bonding, and outreach, with statistical significance well below the 0.01 threshold.

Table 4.8: Model Summary

Model	R	R ²	Adjusted R ²	Std. Error of the Estimate
1	0.782	0.611	0.605	0.389

The multiple regression model explains 61.1% of the variance in worship service outcomes ($R^2 = 0.611$), indicating a statistically significant and substantial predictive power. Among the predictors, online streaming and broadcasting has the strongest positive impact ($\beta = 0.384$, $p < 0.001$), followed by use of social media

platforms ($\beta = 0.310$, $p < 0.001$) and digital communication tools ($\beta = 0.270$, $p < 0.001$). All three predictors are statistically significant, suggesting that increased use of these ICT components contributes meaningfully to improvements in worship outcomes, including enhanced attendance, spiritual growth, and broader outreach.

CONCLUSION

The study concluded that ICT plays a critical role in enhancing worship service delivery in Ryakasinga Archdeaconry. All three ICT components examined social media platforms, online streaming and broadcasting, and digital communication tools significantly predict positive worship outcomes. Churches that embrace technology are more likely to experience higher worship attendance, improved spiritual engagement, stronger community ties, and extended outreach.

RECOMMENDATION

The study recommended that churches should expand ICT infrastructure to enhance worship service delivery. This should involve investing in reliable internet connectivity, quality audiovisual equipment, and church-specific applications. Such tools would ensure seamless communication, improve the quality of worship experiences, and facilitate the broader reach of church services both locally and globally.

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