

State of ICT in Somali  
Universities and Research  
Institutions: **Current Realities**  
& **Future Possibilities**



**ASSESSMENT REPORT 2024**

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## 01

# Executive Summary

In an effort spearheaded by the Somali Research and Education Network (SomaliREN), a comprehensive survey across its 28 member institutions revealed pivotal insights into the state of Information and Communication Technology (ICT) within Somali Higher Education and Research Institutions. This initiative aimed to delineate the current landscape of ICT infrastructure, gauge the extent of ICT utilization, uncover prevalent challenges and needs, and identify strategic priorities for future ICT investment. The findings from this survey offer a blueprint for enhancing ICT capabilities, crucial for advancing education and research sectors in Somalia.

**The survey findings underscore significant disparities in ICT infrastructure across institutions, with notable variances in internet bandwidth capacities and speeds. A striking 46.43% of institutions reported inadequate internet speeds, highlighting a pressing need for enhanced internet services and data center facilities. Furthermore, the survey unveiled that only 53.57% of institutions have a fully dedicated ICT office, affecting the effective management and support of ICT resources.**

Despite some institutions reporting effective utilization of management systems and e-resources, a considerable gap in fully leveraging these technologies was identified. Particularly, the utilization of paid data management and research tools is markedly low, with 35.71% of institutions not utilizing these tools at all, suggesting a significant untapped potential that could dramatically enhance research productivity and innovation.

Challenges identified include not only the aforementioned inadequate internet speeds and the absence of dedicated ICT offices but also limited access to digital resources, with

64.29% of respondents indicating a lack of access to paid data management and research tools. These challenges underscore the urgent need for focused improvements and investments to overcome these obstacles and fully harness the potential of ICT in education and research.

Stakeholders have prioritized areas for future investment, with a compelling 92.86% identifying infrastructure development as a top priority, underscoring the critical need for upgrading internet connectivity and establishing or improving data center facilities. Additionally, the importance of fostering research and innovation through ICT was emphasized, with 78.57% advocating for prioritizing investment in research and innovation to elevate the quality and impact of education and research.

In response, the report proposes a series of strategic recommendations aimed at addressing the identified challenges and needs. These include prioritizing the upgrade of internet connectivity and data center facilities, implementing targeted training programs to elevate ICT literacy, and expanding access to essential digital and research tools. A notable emphasis is placed on directing investments towards strategic areas such as training, research and innovation, and the development of policy and governance frameworks, with 96.43% of respondents highlighting the need for training and development to build a robust ICT talent pool.

In conclusion, the survey conducted by SomaliREN provides a comprehensive overview of the challenges and opportunities within the ICT landscape of Somali Higher Education and Research Institutions. The path forward requires a collaborative and strategic approach, leveraging the collective efforts and commitment of all stakeholders within the SomaliREN community and beyond, to realize the vision of a digitally empowered academic landscape in Somalia. Through strategic investments and targeted actions, there exists a formidable opportunity for these institutions to not only improve the quality and accessibility of education and research but also to ensure a meaningful contribution to Somalia's socio-economic development and its integration into the global knowledge economy.

## 02

# Background

By the end of December 2023 and January 2024, the Somali Research and Education Network (SomaliREN) embarked on a pivotal initiative to assess the current landscape of Information and Communication Technology (ICT) across the higher education sector in Somalia. This comprehensive survey was driven by the recognition of ICT's integral role in elevating educational outcomes, research capabilities, and administrative efficiencies. Aimed at capturing a broad spectrum of insights on ICT infrastructure, utilization, challenges, and priorities for future investments, the initiative marked a significant step towards strategic development and enhanced collaboration within the Somali universities and research institutions.

## Survey Participation

The survey saw enthusiastic participation from a diverse array of institutions within the SomaliREN network, each contributing valuable perspectives on their current ICT environments. This collaboration spanned across universities with advanced ICT systems to emerging colleges aspiring to bolster their digital infrastructure, ensuring a well-rounded view of the sector's ICT landscape.

The participating institutions are listed below

1	Amoud University	6	East Africa University
2	Beder International University	7	Galkayo University
3	Benadir University	8	Garowe Teachers Education College
4	Capital University	9	Gollis University
5	City University of Mogadishu	10	Heritage Institute for Policy Studies
		11	Hormuud University
		12	Jamhuriya University of Science & Technology
		13	Jazeera University
		14	Kismayo University
		15	Mogadishu University
		16	Nugaal University
		17	Puntland State University
		18	Red Sea University
		19	Salaam University
		20	SIMAD University
		21	Somali International University
		22	Somali National University
		23	University of Bosaso
		24	University of Burao
		25	University of Hargeisa
		26	University of Health Science
		27	University of Somalia
		28	Zamzam University of Science & Technology

## 03

# Purpose of the Study

The primary objective of the survey conducted by the Somali Research and Education Network (SomaliREN) across its 28 member institutions was to thoroughly assess and map the landscape of Information and Communication Technology (ICT) within Somali Higher Education and Research Institutions. This survey was meticulously designed to achieve multiple key goals:

**1. Evaluate Current ICT Infrastructure:** To gain a comprehensive understanding of the existing ICT infrastructure, including internet bandwidth, data center facilities, and the availability of digital resources across the member institutions. This evaluation aimed to identify the strengths and limitations of current ICT setups, providing a baseline for improvement and development strategies.

**2. Determine ICT Utilization Levels:** To ascertain how effectively current ICT resources are being utilized for educational and research purposes. This involved examining the adoption and use of management systems, e-resources, learning management systems (LMS), and other digital tools that support the academic and administrative functions of the institutions.

**3. Identify Challenges and Needs:** To uncover the specific challenges and obstacles that institutions face in integrating and leveraging ICT for their operational, educational, and research activities. Understanding these challenges is

crucial for developing targeted interventions and support mechanisms.

**4. Gather Insights for Future ICT Investments:**

To solicit input from the institutions on areas requiring attention and investment, focusing on how to best enhance ICT infrastructure, resources, and skills within the academic and research community. This insight is vital for prioritizing future initiatives and ensuring that investments align with the actual needs and aspirations of the institutions.

**5. Foster Collaboration and Knowledge Sharing:**

To encourage a culture of collaboration and knowledge sharing among member institutions, leveraging the survey as a platform to exchange best practices, innovative solutions, and success stories in the realm of ICT.

The survey serves as a critical tool for SomaliREN and its member institutions to understand the current state of ICT, enabling informed decision-making and strategic planning for the enhancement of digital infrastructure and resources. By addressing the identified challenges and leveraging opportunities for improvement, the survey aims to support the advancement of higher education and research in Somalia, fostering an environment conducive to innovation, collaboration, and excellence in the digital age.

## 04

# Campus ICT Infrastructure

The foundation of any robust Information and Communication Technology (ICT) framework in higher education institutions lies in its infrastructure. The survey conducted across all Somali Research and Education Network (SomaliREN) member institutions provided insightful data on the current state of campus ICT infrastructure, highlighting several key areas for consideration.

## Total Internet Bandwidth Capacity

Survey findings reveal a diverse range of internet bandwidth capacities across institutions:

Bandwidth Capacity (Mbps)	# of Institutions	% of Institutions
5 -10	8	28.57
10 – 20	4	14.29
20 – 50	10	35.71
50 -100	3	10.71
100 and above	3	10.71

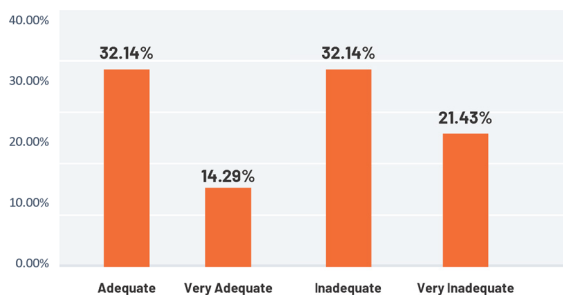
### Average Campus Internet Bandwidth Capacity. Table 1

This data suggests a significant variance in bandwidth availability. It indicates that the average bandwidth capacity across the SomaliREN institutions is 45.71 Mbps.

**Additionally, it is noteworthy that 78.57% of our institutions possess internet capacities that fall below 51 Mbps. It indicates a potential barrier to consistent internet access and usage across institutions. Enhancing bandwidth capacity where it is currently insufficient could dramatically improve the quality of online learning and research capabilities.**

## Campus Internet Speed

The perception of internet speed among institutions indicates mixed satisfaction:



These insights highlight the critical need for upgrading

internet infrastructure to ensure that higher education institutions can meet the demands of modern educational delivery and research.

## Availability of a Dedicated ICT Office

The presence of dedicated ICT offices is as follows:

- **53.57%** of institutions have a **Dedicated ICT Office**.
- **21.43%** report having one that is **Somewhat Available**.
- **21.43%** are **Fully Equipped**, while only **3.57%** describe their ICT office as **Not Available**.

A dedicated ICT office is crucial for managing and resolving the array of technical challenges that arise, suggesting that institutions lacking in this area may face significant hurdles in ICT management and support.

### Data Center Facility

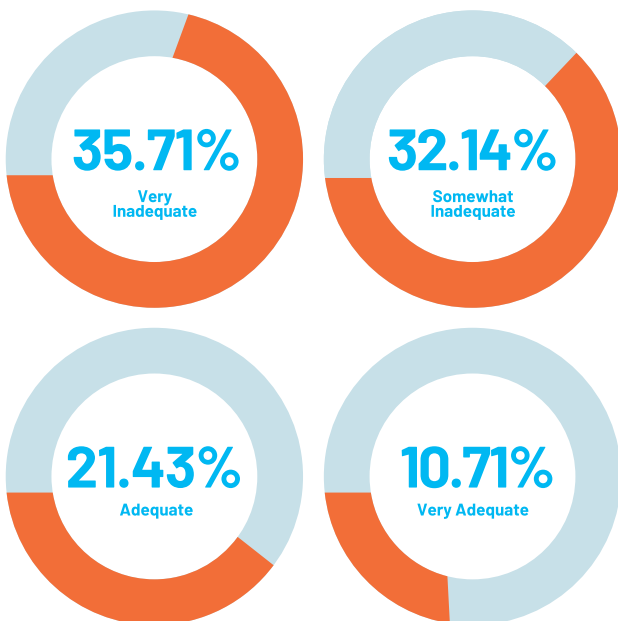
Data center facilities are reported to be:

- **Basic** in **50%** of institutions.
- **Adequate** in **25%**, and **Non-existent** in **25%**.

The absence or inadequacy of data center facilities in a significant portion of institutions underscores an urgent need for investment in this critical infrastructure to support data storage, processing, and security.

### E-Resources

The availability and adequacy of e-resources (e.g., e-library, labs) are perceived as:

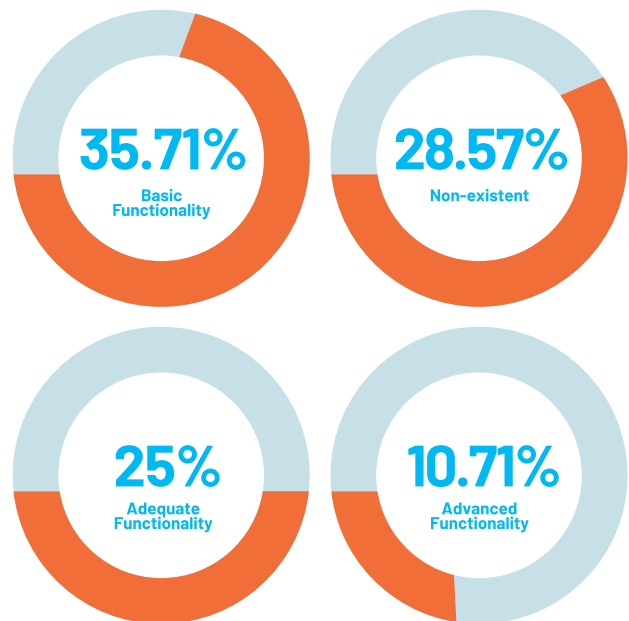


This indicates a considerable gap in the provision of essential digital resources, which are pivotal for

contemporary education and research.

### Learning Management System (LMS)

The functionality of Learning Management Systems across institutions shows:



The data highlights a significant opportunity for enhancing digital learning platforms, which are instrumental in delivering flexible and accessible education.

### Frequency of Technical Issues

The frequency of technical issues with campus internet and data center facilities reveals:

- A considerable percentage of institutions (**46.43%**) experience issues **Rarely**, which is positive. However, the presence of institutions facing issues **Occasionally (32.14%)**, **Frequently (17.86%)**, and **Very Frequently (3.57%)** with their internet and data centers indicates room for improvement in technical support and infrastructure reliability.

## 05

# ICT Utilization

Effective utilization of ICT resources is crucial for maximizing the benefits of digital transformation in higher education. The survey conducted across SomaliREN member institutions has shed light on how these resources are employed, revealing both strengths and areas for improvement in the utilization of ICT for educational and administrative purposes.

## Management Systems (e.g., Student Information Systems)

The survey highlights the varying degrees of utilization of management systems within institutions:

- **64.29%** of the institutions report that their management systems are **Fully Utilized**, indicating a high level of integration and reliance on these systems for administrative and academic management.
- **21.43%** of institutions acknowledged **Partial Utilization**, suggesting that while these systems are in place, they may not be leveraged to their full potential.
- A smaller segment, **10.71%**, admit to **Not Utilizing** these systems effectively, and **3.57%** report **Rarely Utilizing** them, pointing to significant opportunities for enhancing operational efficiency and data management through better utilization.

## E-Resources

The adoption and utilization of electronic resources such as e-libraries and digital laboratories are critical for supporting modern learning environments and research:

- **39.29%** of institutions have **Partially Utilized** e-resources, indicating a recognition of their value but also highlighting a gap in maximizing these resources' potential.
- **25.00%** report **Fully Utilizing** their e-resources, showcasing examples of effective integration into learning and research.
- However, **17.86%** of institutions **Not Utilizing** and another **17.86%** **Rarely Utilizing** e-resources point to underexplored opportunities in enhancing the digital learning landscape.

## Data Management and Research Tools/Software

The survey also explored the utilization of paid data management and research tools/software, which are essential for conducting sophisticated research and managing large datasets:

- A significant portion, **35.71%**, indicate these tools are **Not Utilized**, while **28.57%** are **Partially Utilizing** them, and **25.00%** are **Rarely Utilizing** them. This suggests a notable underutilization of available tools that could dramatically improve research output and data handling capabilities.
- Only **10.71%** of institutions report **Fully Utilizing** these tools, underscoring a critical area for development in promoting advanced research methodologies and data analytics within the academic and research community.

## Collaborative Tools (e.g., online meeting platforms, Event Management Systems)

The adoption of collaborative tools is essential for fostering communication and collaboration among students, faculty, and researchers, especially in an increasingly digital academic world:

- The survey results show an even split, with **32.14%** of institutions reporting **Partial Utilization** and another **32.14%** **Fully Utilizing** these tools, reflecting a growing recognition of their importance in enhancing collaborative efforts.
- However, **21.43%** of institutions have **Not Utilized** collaborative tools effectively, and **14.29%** **Rarely Utilize** them, indicating potential areas for improvement in promoting a collaborative culture and leveraging technology to support it.



## 06

# ICT Challenges and Needs

In the journey towards achieving digital excellence within higher education and research institutions, understanding, and addressing the myriad of challenges and needs related to Information and Communication Technology (ICT) is crucial. As these institutions strive to harness the full potential of digital technologies to enhance education, research, and administrative efficiency, they encounter several obstacles that can impede progress. The comprehensive survey conducted by the Somali Research and Education Network (SomaliREN) across its 28 member institutions has been instrumental in illuminating these critical challenges and articulating the specific needs that must be met to foster a robust and effective ICT environment.

The significance of overcoming these challenges cannot be overstated. In an era where digital technologies are rapidly transforming educational landscapes globally, the ability of institutions to adapt and thrive is increasingly dependent on their ICT capabilities. Challenges such as inadequate internet speeds, insufficient ICT support structures, and limited access to essential digital resources not only affect the day-to-day operations of these institutions but also their long-term strategic goals. These issues can hinder the participation of Somali higher education and research institutions in the global academic community, limit opportunities for students and researchers, and restrict the overall development of the sector. Moreover, the survey's findings serve as a clarion call for concerted efforts to address these needs. From enhancing internet connectivity and ICT support services to upgrading data management systems and expanding digital resources, the range of needs identified reflects both foundational and

advanced ICT requirements. Addressing these needs is imperative not only for improving the quality and accessibility of education and research but also for empowering institutions to contribute to Somalia's social and economic development.

As we delve into the specifics of the challenges and needs identified through the survey, it is important to keep in mind the broader implications of these findings. The capacity of SomaliREN member institutions to overcome these obstacles will play a pivotal role in determining their ability to leverage ICT as a catalyst for innovation and progress. This section aims to provide a comprehensive analysis of these challenges and needs, offering insights into the current state of ICT in Somali higher education and research institutions and highlighting the critical areas where targeted interventions are necessary.

## Inadequate Campus Internet Speed

- **46.43%** of the institutions reported experiencing inadequate campus internet speed. This issue is a significant barrier to accessing online resources, delivering digital content, and conducting research activities that require high-speed internet connections. The need for faster and more reliable internet services is paramount to ensure that educational and research institutions can operate effectively in the digital age.

## Lack of a Dedicated ICT Office

- **28.57%** of the institutions highlighted the lack of a dedicated ICT office as a key challenge. A dedicated ICT office plays a crucial role in managing and supporting the ICT infrastructure, addressing technical issues, and driving the adoption of new

technologies. The absence of such an office can hinder the effective management and utilization of ICT resources.

### Inefficient Data Center Facility

- **46.43%** of respondents identified inefficiencies in their data center facilities. Data centers are essential for storing, processing, and securing the institutions' digital resources and data. Inadequate data center facilities can compromise data integrity, accessibility, and security, affecting the overall ICT capabilities of the institutions.

### Limited Management Systems

- The survey revealed that **39.29%** of institutions face challenges with limited management systems. Effective management systems are critical for streamlining administrative processes, managing student information, and enhancing decision-making processes. The lack of comprehensive management systems can impede operational efficiency and the delivery of educational services.

### Lack of Access to Data Management and Research Tools

- A significant challenge reported by **64.29%** of the institutions is the lack of access to paid data management and research tools. These tools are vital for conducting advanced research, managing large datasets, and fostering innovation. Limited access to these resources can hinder the research

capabilities and academic performance of the institutions.

### Insufficient Collaborative Tools

- **46.43%** of institutions noted the insufficiency of collaborative tools. In today's interconnected world, collaborative tools are essential for facilitating communication and cooperation among students, faculty, and researchers. The lack of these tools can impede collaborative learning and research efforts.

### Limited or Outdated E-library Resources

- **64.29%** of the respondents indicated that their institutions suffer from limited or outdated e-library resources. Access to a wide range of current and comprehensive digital resources is crucial for supporting learning, teaching, and research activities. The inadequacy of e-library resources can significantly impact the quality of education and research outputs.

### Inadequate Learning Management System (LMS)

- **35.71%** of the institutions reported inadequacies in their Learning Management Systems (LMS). An efficient LMS is essential for delivering online education, managing course content, and facilitating student engagement. Inadequate LMS can limit the effectiveness of digital learning initiatives.

## 07

# Future Prospects

As Somali Higher Education and Research Institutions navigate the complexities of digital transformation, identifying and prioritizing areas for future ICT investment is essential for sustained progress and innovation. The survey conducted by the Somali Research and Education Network (SomaliREN) has provided valuable insights into the collective aspirations and strategic directions envisioned by its member institutions. These insights not only highlight the commitment to enhancing ICT capabilities but also underscore the critical areas where focused investments can yield significant impacts on the quality of education and research.

## Infrastructure Development

- A compelling **92.86%** of respondents identified infrastructure development as a top priority for future investment. This encompasses upgrading internet connectivity, enhancing data center facilities, and expanding access to digital resources. Investing in robust ICT infrastructure is seen as foundational, ensuring that institutions have the necessary backbone to support advanced technologies and digital services.

## Software and Tools

- **75.00%** of the institutions highlighted the importance of investing in software and tools. This includes the acquisition and development of advanced management systems, research tools, and collaborative platforms. Such investments are crucial for improving administrative efficiency, research capabilities, and fostering collaboration within and across institutions.

## Training and Development

- Emphasizing the human element in ICT, **96.43%** of respondents pointed to training and development as a critical area for investment. This underscores a widespread recognition of the need to enhance ICT skills among faculty, students, and administrative staff. Focused training programs can empower stakeholders to effectively utilize ICT resources, engage in innovative research, and adopt best practices in digital education.

## Research and Innovation

- **78.57%** of survey participants advocate for prioritizing investment in research and innovation. This includes supporting initiatives that leverage ICT for developing new teaching methodologies, conducting cutting-edge research, and fostering an environment of innovation within institutions. Such investments can position Somali higher education as a leader in ICT-driven educational innovation and research excellence.

## Policy and Governance

- Lastly, **39.29%** of the institutions recognize the need for investment in policy and governance related to ICT. This reflects an understanding of the importance of creating a supportive regulatory framework that promotes the adoption of ICT in education, ensures data security and privacy, and facilitates the sustainable development of ICT infrastructure and services.

## 08

# Recommendations

## Strengthen ICT Infrastructure

- 1. Upgrade Internet Connectivity:** Allocate resources to increase internet bandwidth across institutions to meet the growing demands of digital education and research activities. This includes investing in high-speed internet services and ensuring reliable connectivity to facilitate seamless access to online resources and platforms.
- 2. Develop Robust Data Centers:** Establish or upgrade existing data center facilities to provide adequate data storage, processing, and security capabilities. This will support the vast data needs of modern educational and research activities, ensuring data integrity and availability.
- 3. Expand Access to Digital Resources:** Enhance the provision of e-resources, including e-libraries and digital labs, ensuring that students and faculty have access to the latest research materials and learning tools. This effort should be coupled with the expansion of Learning Management Systems (LMS) to support diverse and flexible learning environments.

## Enhance ICT Utilization

- 1. Comprehensive Training Programs:** Implement regular, structured training programs for faculty, staff, and students to improve ICT literacy and skills. This will empower them to effectively utilize available ICT resources, engage in digital learning activities, and enhance research capabilities.
- 2. Adopt Advanced Management Systems:** Encourage the adoption and full utilization of advanced management systems for administrative processes, student information management, and academic planning. These systems should be integrated across institutional functions to improve efficiency and decision-making.
- 3. Leverage Collaborative Tools:** Promote the use of collaborative tools and platforms to foster a culture of

collaboration among students, faculty, and researchers. This includes investing in online meeting platforms, project management tools, and event management systems to enhance communication and teamwork.

## Address ICT Challenges and Needs

- 1. Establish Dedicated ICT Offices:** Ensure that every institution has a fully equipped and staffed ICT office responsible for managing the ICT infrastructure, addressing technical issues, and driving the digital transformation agenda.
- 2. Access to Data Management and Research Tools:** Facilitate access to paid data management and research tools to support advanced research activities. This can be achieved through institutional subscriptions, consortia agreements, or partnerships with technology providers.

## Prioritize Future Investments

- 1. Focus on Training and Development:** Prioritize investments in training and development to build a robust ICT talent pool within institutions. This includes funding for professional development programs, workshops, and seminars focused on emerging ICT trends and technologies.
- 2. Support Research and Innovation:** Allocate resources to initiatives that promote research and innovation in the use of ICT in education. Encourage the development of innovative teaching methods, research projects, and technology-driven solutions to educational challenges.
- 3. Implement Policy and Governance Frameworks:** Develop and enforce comprehensive ICT policies and governance frameworks that support the sustainable development of ICT infrastructure, ensure data privacy and security, and promote the ethical use of technology in education and research.

## 09

# Conclusion

The extensive survey conducted by the Somali Research and Education Network (SomaliREN) across its 28 member institutions has provided invaluable insights into the current state, challenges, and future prospects of ICT in Somali Higher Education and Research Institutions. Through this collaborative effort, we have gained a detailed understanding of the diverse ICT infrastructure in place, the extent of ICT utilization, the myriad challenges institutions face, and the aspirations they hold for leveraging ICT as a catalyst for educational and research excellence.

The findings highlight a landscape marked by significant disparities in ICT infrastructure and utilization, coupled with a common vision towards overcoming these challenges and harnessing the full potential of digital technologies. The challenges identified, ranging from inadequate internet connectivity to insufficient access to digital resources and the need for enhanced ICT training and development, underscore the critical areas requiring immediate attention and strategic action.

However, the survey also underscores a strong commitment within the SomaliREN community to drive forward the digital transformation agenda. The future prospects outlined by member institutions, emphasizing the need for investment in infrastructure development, software and tools, training and development, research and innovation, and policy and governance, reflect a comprehensive roadmap for advancing ICT in higher education and research.

The recommendations provided in this report are designed to address the identified challenges and needs, offering a strategic framework for enhancing ICT capabilities across SomaliREN member institutions. By prioritizing these recommendations, institutions can embark on a path towards achieving a more integrated, efficient, and innovative ICT landscape that supports the delivery of quality education and cutting-edge research.

In conclusion, the journey towards realizing the full potential of ICT in higher education and research is a collaborative endeavor that requires the commitment, investment, and strategic action of all stakeholders within the SomaliREN community and beyond. By working together to implement the recommendations outlined in this report, Somali Higher Education and Research Institutions can overcome existing barriers, leverage digital technologies for transformative change, and contribute more effectively to Somalia's development and its integration into the global knowledge economy.

The path forward is clear, and the stakes are high. Embracing the opportunities for ICT enhancement and addressing the challenges head-on will ensure that Somali Higher Education and Research Institutions are well-positioned to meet the evolving needs of their students, faculty, and the broader research community, paving the way for a future rich in innovation, collaboration, and excellence.



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