RISA
Rwanda Information Society Authority

November 2023

NATIONAL DIGITAL SKILLS FRAMEWORK

RISA
KIGALI, RWANDA

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List of Acronyms

CPD	-	Continuous professional development
CSOs	-	Civil Society Organizations
DAP	-	Digital Ambassadors Programme
DigComp	-	Digital Competence Framework for Citizens
DiSTO	-	Digital Skills to Tangible Outcomes
DLGF	-	Digital Literacy Global Framework
DLW	-	Digital Literacy for Workforce
DOT	-	Digital Opportunity Trust
EU	-	European Union
GIZ	-	Deutsche Gesellschaft fur internale Zusammenarbeit
IBM	-	Electronic Billing Machine
ICDL	-	International Computer Driving License
ICT	-	Information and Communication Technologies
ILO	-	International Labor Organization
IoT	-	Excellence in the Internet of Things
IP	-	Implementation Plan
IPRC	-	Integrated Polytechnic Regional College
ITU	-	International Telecommunication Union
KOICA	-	Korea International Cooperation Agency
KSA	-	Knowledge, Skills and Attitudes
M&E	-	Monitoring and Evaluation
MIFOTRA	-	Ministry of Public Service and Labour
MIGEPROF	-	Ministry of Gender and Family Promotion
MINALOC	-	Mistry of Local Government
MINEDUC	-	Ministry of Education
MINICT	-	Ministry of ICT and Innovation
MIT	-	Massachusetts Institute of Technology
MoMo	-	Mobile Money
MTN	-	Mobile Telephone Network
NDSF	-	National Digital Skills Framework
NGOs	-	Non-Governmental Organizations
NST	-	National Strategy for Transformation
PWDs	-	Persons with Disabilities
RCA	-	Rwanda Coding Academy

RDB	-	Rwanda Development Board
RISA	-	Rwanda Information Society Authority
RRA	-	Rwanda Revenue Authority
RTDA	-	Rwanda Transport Development Agency
RURA	-	Rwanda Utilities Regulatory Authority
SDG	-	Sustainable Development Goal
SMEs	-	Small and Medium Enterprises
SRMP	-	Smart Rwanda Master Plan
TVET	-	Technical Vocational and Education Training
UNESCO	-	United Nations Educational, Scientific and Cultural Organization.
UNICEF	-	United Nations Children's Fund

Definitions/Glossary

Advanced Digital Skills: Higher-level skills that enable individuals to leverage digital technologies for more complex tasks, such as data analysis, programming, and digital marketing.

Artificial Intelligence (AI): The simulation of human intelligence in machines to perform tasks that typically require human intelligence.

Basic Digital Skills: Fundamental skills necessary for everyday digital tasks, including using computers, the internet, and digital communication tools.

Big Data: Extremely large and complex data sets that require specialized techniques for analysis and processing.

Cloud Computing: The delivery of computing services over the internet, such as storage, databases, and software.

Coding and Programming: Writing and using programming languages to create software, applications, and digital solutions.

Cybersecurity Awareness: Knowledge and understanding of online security threats and best practices for protecting personal and sensitive data.

Data Analysis: The process of examining and interpreting data to draw meaningful insights and conclusions.

Data Privacy: Ensuring the protection and confidentiality of personal and sensitive data in digital environments.

Digital Citizenship: Understanding and practicing ethical, responsible, and safe behavior online.

Digital Collaboration: The ability to work with others using digital tools, platforms, and collaborative technologies.

Digital Communication: The use of digital tools and platforms for effective communication, including email, instant messaging, and social media.

Digital Literacy: Refers to the foundational skills required for using digital technologies and navigating the digital environment effectively.

Digital Transformation: The integration of digital technologies into all aspects of an organization's activities to improve efficiency and effectiveness.

E-commerce: Conducting commercial transactions and buying/selling goods or services online.

Information Literacy: The ability to locate, evaluate, and use information from digital sources critically and ethically.

Internet of Things (IoT): A network of interconnected devices and objects that can communicate and exchange data over the internet.

Media Literacy: The skill to analyze and interpret media messages and information from various digital sources.

Remote Work: Working from a location outside the traditional office environment using digital tools and communication technologies.

User Experience (UX) Design: Designing digital interfaces and products with a focus on meeting user needs and enhancing usability.

Executive Summary

Rwanda, aspiring to be a technology hub in East Africa, recognizes the pressing need for digital skills in today's fast-evolving technological landscape. To address this, the country has developed the National Digital Skills Framework (NDSF) which aims to standardize digital training, offering all Rwandans a chance to excel in the digital economy. Serving as a benchmark, the NDSF ensures uniform quality in digital skills training and helps identify skill gaps. It clarifies digital literacy levels for educators, employers, and learners, aiding in curriculum design and ensuring graduates are digitally competent. Given the swift shift towards digitization in various sectors, the NDSF emphasizes online safety and problem-solving. Adopting this framework is vital for Rwanda's vision to be a regional technological leader, preparing its citizens for the digital era's opportunities. In essence, the NDSF is a crucial move for Rwanda's digital progression, setting clear digital proficiency standards for its people.

Rwanda aims to become a significant digital player, as evident from its Smart Rwanda Initiative, significant investment in digital infrastructure, fostering innovation through various hubs and initiatives, prioritizing digital skills development. The country has taken substantial steps towards achieving this vision, with developments such as robust digital infrastructure, smart city initiatives in Kigali, digital literacy programs, innovative hubs, and more. However, Rwanda still faces several challenges including digital inequality, shortage of skilled digital workforce, cybersecurity threats, need for robust data privacy regulations, digital literacy gaps, sustainability of digital infrastructure, the need for appropriate regulatory frameworks, and ensuring access to financial services and ICT tools for all.

The overarching aim of the NDSF in Rwanda is manifold: promoting digital inclusion, transforming the workforce, sparking innovation, elevating educational standards, ensuring gender equality in the digital realm, achieving a balance between urban and rural digital development, and propelling economic growth and global integration. The rationale behind Rwanda's NDSF lies in its potential to drive economic growth, foster innovation, bridge the digital divide, enhance education, create jobs, position Rwanda as a global player in the digital arena, improve government efficiency through e-governance, prepare the population for cybersecurity risks, support lifelong learning, enable digital transformation across sectors, and future-proof the workforce in line with global technological trends. In summary, the NDSF acts as a strategic roadmap for equipping Rwandans with the necessary digital skills, propelling the nation towards its goal of a digitally empowered society.

Chapter one of the NDSF foregrounds Rwanda's ambition towards realizing a digitally empowered country. It discusses the multifaceted approach Rwanda is using to leverage technology for economic growth, innovation, and inclusive development thereby positioning the nation as a prominent player in the global digital arena. The achievements the country has made which emphasize her dedication to using digitalization as a catalyst for economic growth, development, and social inclusion are also discussed. The chapter also explores the challenges and potential gaps to be addressed for Rwanda to achieve a sustained growth and leadership in the digital landscape. It concludes by discussing the rationale for the National Digital Skills Framework for Rwanda.

Chapter two delves into a review of existing policies, strategies and initiatives that support Rwanda's pursuit of digital transformation. Rwanda's aspiration of leveraging on ICT for socio-economic growth is evident through its multifaceted policies, strategies, and initiatives. In terms of policies, the ICT in Education Policy aims to integrate ICT into education, fostering a digitally adept generation, while the Digital Talent Policy aspires to shape a workforce ready for the digital economy. Strategically, the NICI Strategy and Plan charts out the country's vision for a digital society, complemented by the ICT Sector Strategic Plan (2018-2024) which delves into specific ICT goals. The Smart Rwanda 2020 Master Plan further integrates ICT across various sectors for holistic development. Several hands-on initiatives support these strategies. Notable ones include the Rwanda Coding Academy that focuses on tech skills, K-Lab which acts as a tech incubation space, and the Irembo Platform that digitizes public services. Additionally, programs like the Digital Ambassadors Program and collaborations with global tech firms bolster digital literacy and resource availability. Efforts like the 4G LTE for All Initiative and the Rwanda Innovation Fund respectively aim at broadening internet accessibility and financially aiding promising tech ventures. The Africa Digital Media Academy (ADMA) showcases Rwanda's endeavor to cultivate digital media talents.

The National Digital Skills Framework for Rwanda (NDSF) covers the requisite digital skills Rwandans must possess to thrive in the digital economy. The framework, shaped through extensive consultations with various stakeholders

such as the government, private entities, academic bodies, and civil society, aims to enable Rwanda in its mission to evolve into a digitally proficient nation and ultimately, a knowledge-driven economy. Central to the NDSF are seven key competence areas: Digital Devices, Information and Data Literacy, Digital Communication, Digital Transacting, Digital Content Creation, Online Safety and Security, and Digital Problem Solving.

The Digital Devices Proficiency competency encompasses the effective and confident use of various digital devices. It spans digital devices, smart device operation, operating system familiarity, application software understanding, digital device security, and the skills required for data backup and recovery.

In the realm of Information and Data Literacy, the focus is on the capacity to locate, evaluate, interpret, and effectively use information and data. This area addresses the skills required for the search and retrieval of digital content, data and information management, their analysis and visualization, evaluation, and ensuring the privacy and security of such content.

Digital Communication competency is pivotal for the digital age. It is all about efficiently exchanging information, ideas, or messages among individuals or groups. This involves mastery over digital communication tools, online social interaction norms, digital presentation skills, understanding online professionalism, effective digital content sharing methods, engaging responsibly as a digital citizen, maintaining a digital identity, and navigating virtual meetings and collaborations.

Digital Transacting highlights the growing need for skills in conducting electronic business or financial transactions. Key components here encompass accessing e-Government and other online services, understanding digital financial terminologies and processes, being adept at online shopping and e-commerce, being familiar with diverse digital payment systems, and the ability to deal with electronic forms, contracts, and agreements.

The Digital Content Creation competency emphasizes the ability to generate and produce digital media. This includes a command over content creation tools, the art and science of content curation, proficiency in multimedia production, optimizing content for digital platforms, and a sound understanding of intellectual property rights in the digital sphere.

Online Safety and Security is an ever-pertinent area, underscoring the importance of being free from digital harm, danger, or risk. This encompasses cybersecurity awareness, online privacy protection measures, ensuring digital well-being, upholding digital citizenship values, and being prepared for digital emergencies.

Lastly, Digital Problem Solving focuses on the crucial skill of identifying, analyzing, and resolving digital challenges or issues. This encapsulates proficiency in digital troubleshooting, a foundational understanding of coding and programming, and the acumen to respond to cybersecurity incidents.

Chapter Three discusses the NDSF. In the chapter, the framework is defined and linked to a system of assessment and certification which will allow individuals to demonstrate their digital skills competences to potential employers and educational institutions as well as allow employers to identify and recruit employees with the digital skills they need. The framework draws from the best practices of the model nations to give Rwanda a rich tapestry of strategies to refine her digital skills provision. By synthesizing these lessons and tailoring them to Rwanda's unique socio-economic context, the nation can accelerate its journey towards a digitally proficient populace and a vibrant digital economy. The chapter also describes the proposed theory of change for the NDSF that articulates the medium and short term outcomes, the key activities, outputs and assumptions as well as potential barriers to achieving these outcomes. The gaps to be addressed in each competency area are also identified. The four proficiency levels – foundational, intermediate, advanced and highly specialized – are described by clearly defining the complexity of task, autonomy, cognitive domain and providing examples for each proficiency level. A detailed presentation of the competencies under each competence area on the proficiency continuum from foundation to highly specialized digital skills is provided in Annex 1. This will assist educators, employers, and individuals in understanding and navigating the framework.

Chapter Four presents the operational plan for the NDSF. The operational plan provides a roadmap for achieving the goals and objectives of the framework by outlining the actionable steps, timelines, resources, and stakeholders involved in rolling out and sustaining the framework. The implementation aspects covered include: Governance structure, stakeholder engagement, curriculum development, teacher training and capacity building, partnership development, infrastructure development, program delivery, awareness and outreach, and sustainability and scaling of the NDSF. Each of these aspects are described and key activities to be undertaken are elaborated. Finally, Annex 2 summarizes the implementation plan which covers the outcomes for each identified result areas, assumptions for achieving the result, data sources and the means of verification. The baseline values and fiver year targets are also provided.

Chapter 1: Introduction

Overview of the Chapter

The National Digital Skills Framework (NDSF) for Rwanda is an initiative designed to equip the population with essential digital skills, in line with the country's vision to become a leading innovation and technology hub in East Africa. Recognizing the importance of digital literacy in today's rapidly evolving technology landscape, the NDSF aims to standardize and streamline digital skills training across Rwanda. It serves as both a benchmark for digital proficiency and a guide to ensure consistency, quality, and inclusivity in digital education, regardless of socio-economic backgrounds. The framework not only addresses the technical aspects but also emphasizes online safety, security, and digital problem-solving, preparing Rwandans to safely and effectively navigate the digital age.

This chapter foregrounds Rwanda's ambition towards realizing a digitally empowered country. It discusses the multifaceted approach Rwanda is using to leverage technology for economic growth, innovation, and inclusive development thereby positioning the nation as a prominent player in the global digital arena. The achievements the country has made which emphasize her dedication to using digitalization as a catalyst for economic growth, development, and social inclusion are also discussed. The chapter also explores the challenges and potential gaps to be addressed for Rwanda to achieve a sustained growth and leadership in the digital landscape. It concludes by discussing the rationale for the National Digital Skills Framework for Rwanda.

Ambitions of the country in line with the digital skills

Rwanda is actively pursuing a vision of becoming a prominent digital player, driven by its dedication to economic advancement, innovation, and inclusive prosperity. This ambition is manifest in various areas:

- **Smart Rwanda Initiative:** The "Smart Rwanda Initiative" is a comprehensive plan to transform Rwanda into a knowledge-based economy by harnessing digital technology for economic growth and inclusivity.
- **Digital Infrastructure Development:** Rwanda has invested substantially in expanding her ICT infrastructure, including high-speed internet and a national data center, to establish a digitally connected nation.
- **Innovation Ecosystem:** Rwanda fosters innovation through hubs like the Kigali Innovation City, supporting startups, tech entrepreneurs, and researchers in driving innovation.
- **Digital Skills Development:** Rwanda prioritizes digital skills with programs in schools, coding courses, and partnerships with global tech companies to provide training in high-demand digital skills.
- **E-Government Services:** Rwanda's e-government initiatives enhance governance efficiency and public service delivery, offering online access to various services.
- **International Collaborations:** Rwanda collaborates with international organizations and tech giants, such as the World Bank and African Development Bank, to bolster digital infrastructure projects.
- **Blockchain and Cryptocurrency:** Rwanda envisions the potential of blockchain and cryptocurrency in all sectors where innovation, artificial intelligence and or emerging technologies can be applied.
- **Cybersecurity:** Rwanda is proactive in enhancing cybersecurity through the Rwanda Information Society Authority (RISA) to safeguard its digital initiatives.

Thus, Rwanda's digital ambition is evident in her multifaceted approach to leveraging technology for economic growth, innovation, and inclusive development, positioning the nation as a prominent player in the global digital arena.

Achievements

Rwanda's impressive achievements in the digital landscape underscore its commitment to leveraging technology for

socioeconomic development and inclusion. Notable accomplishments, even though continuous enhancements are ongoing, include:

- Digital Infrastructure: Rwanda's investment in advanced ICT infrastructure, including high-speed internet connectivity like 4G and 5G networks, lays a robust foundation for digital growth, benefiting businesses and improving access to information and services.
- **Smart Cities:** Kigali's transformation into a smart city with initiatives such as smart traffic lights, free public Wi-Fi, and digital bus ticketing enhances residents' quality of life and attracts businesses, aligning with Rwanda's goal of efficient urban development.
- **Digital Literacy:** Rwanda's dedication to digital literacy, exemplified by the Digital Ambassadors Program and other training opportunities related to ICT skills, equips her youth with essential digital skills, preparing them for the digital era and long-term economic growth.
- **E-Government Services:** The "Irembo" platform and other public e-portals streamlines government services, making them more accessible, efficient, and transparent for citizens and businesses, in line with Rwanda's commitment to improving the ease of doing business.
- **Innovation Hubs:** Establishing innovation hubs and tech incubators like KLab and Impact Hub Kigali, Hanga Hubs in secondary cities among others foster a vibrant tech ecosystem, supporting startups and entrepreneurs and driving innovation in the country.
- **Cybersecurity:** Rwanda's establishment of the National Cybersecurity Authority (NCA) demonstrates its commitment to safeguarding digital infrastructure and citizens from cyber threats, fostering a secure digital environment.
- **Digital Health Solutions:** The adoption of digital health solutions, including electronic health records (EHRs) and telemedicine, improves healthcare access and delivery, particularly in remote areas, contributing to better health outcomes.
- **Financial Inclusion:** Promoting cashless transactions and mobile banking through services like "MTN Mobile Money" and "Tigo Cash" enhances financial inclusion, empowering citizens, promoting economic growth, and reducing reliance on cash. Adoption of financial service providers interconnection through R-switch was another notable milestone among others.
- **Digital Education:** During the COVID-19 pandemic, Rwanda's adoption of digital education ensured uninterrupted learning through online platforms, reflecting its commitment to providing quality education under challenging circumstances.

In conclusion, Rwanda's achievements in the digital landscape illustrate her vision and strategic investments in technology and innovation. These accomplishments position Rwanda as a digital leader in Africa, emphasizing her dedication to using digitalization as a catalyst for economic growth, development, and social inclusion.

Challenges and Gaps

Rwanda's digital landscape, despite significant growth, faces numerous challenges in the context of its digital economy and society development:

- **Digital Inequality:** Despite improvements in digital infrastructure and literacy, disparities persist, particularly in rural and marginalized communities. These areas often lack access to high-speed internet and digital resources, leading to a demographic digital divide.
- **Limited Digital Workforce:** The digital sector is expanding rapidly, but there's a shortage of skilled professionals in specialized fields like cybersecurity, artificial intelligence, and data science, potentially impeding the full utilization of emerging technologies.
- **Cybersecurity Threats:** With increased digitalization comes heightened cybersecurity risks. Continuous investment in cybersecurity measures and awareness is needed to protect infrastructure, businesses, and individuals from cyberattacks.
- **Data Privacy and Regulation:** Balancing innovation with robust data protection and privacy regulations presents a challenge, especially as personal data collection and processing increase.

- **Digital Literacy Gaps:** Efforts to improve digital literacy face challenges, particularly among older generations. Continuous education and awareness programs are essential to address these gaps.
- **Sustainable Infrastructure:** The sustainability of Rwanda's evolving digital infrastructure, including its environmental impact and energy consumption, needs addressing.
- **Regulatory Frameworks:** Establishing regulatory environments that foster innovation while preventing abuses or monopolies is crucial for a healthy digital ecosystem.
- **Access to Finance:** Widening the reach of digital financial services to all, especially those in remote areas, is key for financial inclusion and access to ICT tools.
- **Scalable E-Government Services:** Ensuring that e-government services are accessible, user-friendly, and scalable for all citizens remains a developmental challenge.
- **Industry Collaboration:** Effective collaboration with the private sector, both domestic and international, is essential to leverage expertise and resources for digital innovation.

Addressing these challenges and potential gaps will be crucial for Rwanda's sustained growth and leadership in the digital landscape. Continuously adapting policies, fostering innovation, and prioritizing digital inclusion will be essential elements of Rwanda's digital strategy for the future.

Rationale for the National Digital Skills Framework

The rationale for Rwanda's National Digital Skills Framework (NDSF) is multi-faceted and includes:

- **Economic Growth:** Recognizing the importance of a digitally skilled workforce for economic development and global competitiveness.
- **Fostering Innovation:** Nurturing a culture of innovation through digital skills to drive entrepreneurship and technological progress.
- **Digital Inclusion:** Bridging the digital divide by ensuring all citizens have equitable access to digital skills.
- **Enhanced Education:** Integrating digital literacy into the education system for improved student performance and effective teaching.
- **Job Creation:** Preparing the workforce for employment opportunities in the digital economy to reduce unemployment.
- **Global Competitiveness:** Positioning Rwanda as a global player in the digital space through a skilled workforce.
- **Government Efficiency:** Enhancing public service delivery and governance through digital skills and e-government solutions.
- **Cybersecurity Preparedness:** Equipping citizens with knowledge to understand and mitigate cybersecurity risks.
- **Lifelong Learning:** Supporting continuous digital skills development for career advancement.
- **Digital Transformation:** Enabling digital initiatives across various sectors for societal development. The framework serves as a strategic roadmap to equip citizens with digital skills, fostering innovation, economic growth, and digital inclusion.
- **Future-Proofing the Workforce:** Recognizing the rapid pace of technological change, the NDSF will aim to be dynamic, evolving with global trends and ensuring Rwanda's workforce remains competitive on a global stage.

Chapter 2: Review of Existing Policies and Strategies

In the 21st century, Rwanda has emerged as a nation on a fervent mission to transition from an agrarian economy to a knowledge-based society, with ICT as its pivotal axis. The transformative journey especially when one considers Rwanda's history is not just about technology; it's about leveraging technology to uplift the socio-economic landscape of the entire country. This aspiration, well-captured in the country's Vision 2020, saw the inception of multiple strategic initiatives, each with its unique goals, challenges, and impact. From the overarching National ICT Strategy and Plan (NICI) to specialized programs like the Rwanda Coding Academy and Irembo platform among others, Rwanda has sought to holistically embed ICT into its socio-economic fabric. This detailed review aims to shed light on these endeavors, examining their purpose, the gaps they aimed to address, and the bodies coordinating these initiatives, all while setting a clear picture of where the nation started and the intended impact.

Policies related to Digital Skills

The **ICT in Education Policy** in Rwanda, plays a crucial role in the country's educational and digital landscapes. This policy primarily aims to integrate information and communication technologies comprehensively into the education system at all levels. Its objectives include enhancing the quality and accessibility of education through technology, equipping students with essential digital skills, and fostering ICT literacy to prepare a digitally competent workforce. In terms of its broader implications, the policy is closely interwoven with other national strategies, such as the National Broadband Policy, which ensures necessary internet connectivity, and the National Digital Talent Policy, aligning digital skills with labor market demands. Crucially, this policy is foundational to the success of the National Digital Skills Framework (NDSF). By embedding ICT skills from an early stage in education, it sets the groundwork for a digitally literate society and supports the NDSF's aim to spread digital competencies across Rwanda. This strategic integration of ICT in education is pivotal in driving Rwanda's overall digital transformation goals, ensuring that the upcoming generations are well-prepared to navigate and contribute to a digitally-driven future.

The **National Digital Talent Policy** is perhaps the most directly connected to the NDSF. It sets the overarching agenda for digital skills development in Rwanda, under which the NDSF operates. This policy outlines the need for digital literacy at all levels of society, the alignment of educational curricula with digital skills, and the promotion of continuous learning. The NDSF, as an operational arm of this policy, translates these objectives into specific training programs, curricula, and initiatives. It is the framework through which the policy's goals become actionable and measurable.

The **National Digital Talent Policy of Rwanda,** conceived in line with the country's accelerated digital transformation efforts, is pivotal in shaping the nation's digital future. The policy's objectives clearly focus on cultivating a digitally skilled workforce, enhancing digital literacy across all societal levels, and aligning educational systems with the dynamic demands of the digital economy. It forms a cornerstone of Rwanda's broader policy framework, intricately linked with other key policies such as the ICT in Education Policy and the National Broadband Policy, ensuring a cohesive approach to digital infrastructure and education. Most critically, this policy serves as the strategic foundation for the NDSF, outlining the overarching goals and priorities for digital skill development. The NDSF operationalizes these strategies into concrete programs and initiatives, driving the development of a workforce adept in essential digital skills and ready to navigate the complexities of the global digital landscape.

The **Artificial Intelligence Policy of Rwanda** plays a pivotal role in shaping the NDSF. It is not just about promoting AI technology but also about ensuring that the Rwandan workforce is equipped with the skills to develop, manage, and utilize AI. The NDSF, guided by this policy, would emphasize creating a curriculum that includes AI fundamentals, machine learning, ethical AI usage, and data analytics. By aligning with the AI policy, the NDSF ensures that Rwanda's talent pool is ready for the AI-driven future, making the country a competitive player in the global digital economy.

The **National Broadband Policy and Strategy** is fundamental to the success of the NDSF. Without widespread and reliable internet access, efforts to enhance digital skills would face significant barriers. This policy's commitment to universal broadband coverage means that digital training programs and resources can reach a wider audience. It ensures that the infrastructure required for online learning, a critical component of modern education and skill development, is in place. As a result, the NDSF can leverage this connectivity to facilitate remote learning, online courses, and digital

literacy programs, making digital education more accessible and inclusive.

The **Rwanda Draft Fintech Strategy** and the **Rwanda Draft Fintech Policy** are crucial in shaping a key component of the NDSF: fintech skills development. These policies aim to create a robust fintech ecosystem, which requires a skilled workforce knowledgeable in financial technologies, digital payments, blockchain, and regulatory compliance. The NDSF, aligning with these policies, would focus on incorporating fintech modules and training programs that cater to the growing demand for fintech professionals. This alignment ensures that the skills taught are relevant and that the workforce is prepared for the evolving demands of the financial sector.

Lastly, the **Rwanda Online Child Protection Policy** adds an essential dimension to the NDSF: online safety and digital citizenship. In today's digital world, it's not just about acquiring digital skills but also about using them responsibly and safely. This policy mandates the integration of online safety education into digital skills training. The NDSF, in response, would include modules on cyber security, digital ethics, and responsible online behavior, ensuring that as Rwandans become more digitally literate, they are also equipped to navigate the digital world safely and ethically.

In essence, these policies collectively create a holistic ecosystem in which the NDSF functions. They not only provide direction and objectives for digital skills development but also ensure that the necessary infrastructure, regulatory environment, and societal safeguards are in place for the effective implementation of the NDSF.

Strategies related to Digital Skills

Rwanda's strategic approach to its digital transformation is multifaceted, encompassing various sectors and aspects of digital technology, all of which contribute to the overarching goals of the National Digital Skills Framework (NDSF).

The **National Cyber Security Strategy** is a critical component of this digital landscape. While the specific development date is unclear, its objectives align with the global trend of increasing cyber threats. This strategy aims to protect national digital infrastructure, secure online transactions, and combat cybercrime. It likely involves initiatives to enhance cyber defense capabilities, foster collaborations between public and private sectors, and raise awareness about cyber threats. The connection of this strategy with the NDSF is significant; it underscores the importance of incorporating cybersecurity awareness and skills into the national digital curriculum, ensuring that individuals are equipped to recognize and mitigate digital risks.

In parallel, the **Digital Content Promotion Strategy** reflects Rwanda's ambition to cultivate a robust digital media ecosystem. This strategy, though its development timeline is not specific, is designed to encourage the creation and dissemination of digital content. It likely focuses on supporting content creators, developing digital platforms for content distribution, and promoting local digital content. This strategy connects with the NDSF by ensuring that digital skills training includes aspects of digital content creation, management, and entrepreneurship, thus fostering a digitally savvy and creative workforce.

The **Rwanda Smart City Master Plan** represents a commitment to utilizing ICT in urban development. Its objectives are to integrate technology into urban planning, enhance city services, and promote sustainable urban environments. Key components of this plan likely include the deployment of smart infrastructure, implementation of IoT solutions, and development of e-services. The plan's relevance to the NDSF lies in its emphasis on skills related to smart city technologies, urban planning, and sustainable development, aligning with the needs of modern, technologically advanced urban environments.

Similarly, the **ICT Hubs Strategy** is a pivotal part of Rwanda's vision to be a regional ICT leader. It aims to create a nurturing environment for ICT innovation and entrepreneurship. This involves establishing centers of excellence, providing resources and support to startups and businesses, and encouraging a culture of innovation. This strategy's connection with the NDSF is crucial, as it supports the development of advanced ICT skills, fostering a generation of innovators and entrepreneurs who are well-versed in the latest technologies.

Lastly, the **ICT Sector Strategic Plan** is a comprehensive blueprint for the growth of Rwanda's ICT sector. This plan is likely to encompass a wide range of initiatives, from enhancing ICT infrastructure and promoting ICT literacy to positioning Rwanda as a regional technology hub. It integrates with various national strategies, including economic development and education policies, and is central to the NDSF. By outlining the direction for ICT skills development and aligning with national digital priorities, it ensures that the workforce is prepared for the evolving demands of the digital economy.

Together, these strategies create a robust framework supporting Rwanda's digital aspirations. While each focuses on specific domains like cybersecurity, digital content, smart cities, ICT innovation, and sectoral growth, their collective impact lies in building a comprehensive, digitally literate, and competent society, as envisioned in the National Digital Skills Framework. This integrated approach ensures that Rwanda's digital skills development is not only wide-ranging but also attuned to the specific needs and ambitions of the nation's digital transformation journey.

Existing initiatives

The following initiatives in Rwanda collectively contribute to the NDSF by addressing various aspects of digital literacy, technical skills, connectivity, and innovation. Their alignment with the framework ensures a comprehensive and strategic approach to digital skills development in the country.

The Smart Rwanda Initiative is a comprehensive program designed to align with the NDSF in Rwanda. Through its various projects, the initiative strategically addresses a spectrum of digital skills, ranging from basic digital literacy to advanced technical competencies. By incorporating elements of the framework into its initiatives, Smart Rwanda ensures that the population is equipped with the necessary digital skills for diverse sectors, including education, healthcare, and business.

The Rwanda Coding Academy plays a pivotal role in contributing to the NDSF by focusing on specialized technical skills, particularly in coding and programming. The academy's curriculum and training programs are likely designed to align with the specific competencies identified in the NDSF. Graduates are thereby equipped with the skills required by the industry, contributing to the development of a workforce capable of meeting the demands of the digital economy outlined in the framework.

K-Lab, as a technology innovation hub, actively contributes to the NDSF by providing a collaborative environment for individuals and businesses to acquire and apply digital skills in real-world projects. Workshops and mentorship programs offered by K-Lab may be tailored to address specific skill gaps outlined in the NDSF, fostering a community of digital innovators aligned with the framework's goals.

The Irembo Platform contributes to the NDSF by promoting digital literacy and access to government services. By facilitating the development of basic digital skills, such as online navigation and interaction, Irembo indirectly supports the overarching goal of the NDSF to create a digitally literate population capable of leveraging technology for personal and professional development.

The Digital Ambassadors Program plays a crucial role in grassroots efforts to enhance digital literacy in Rwanda. Ambassadors, trained under the program, conduct workshops and outreach activities targeting specific digital skills outlined in the NDSF. Through awareness campaigns and training sessions, the program contributes to building a culture of continuous learning and digital competency, aligning with the NDSF's objectives.

The 4G LTE for All Initiative directly contributes to the NDSF by providing a robust and widespread internet infrastructure. This facilitates online learning, access to digital resources, and remote work opportunities, directly supporting the framework's goals related to connectivity and digital access.

The Rwanda Innovation Fund contributes to the NDSF by investing in projects aligned with the framework's digital skills development objectives. By supporting innovative startups and initiatives, the fund fosters the growth of a digitally skilled workforce in line with the needs of the digital economy outlined in the NDSF.

Africa Digital Media Academy (ADMA) contributes to the NDSF by offering specialized training in digital media, aligning with the framework's goals related to digital content creation and multimedia skills. Graduates from ADMA are equipped with the skills needed for roles in digital marketing, content creation, and media production, addressing specific competencies outlined in the NDSF.

In conclusion, Rwanda's holistic ICT blueprint, encompassing diverse strategies and initiatives, stands as a testament to its unwavering commitment to digital transformation.

Chapter 3: National Digital Skills Framework

Definition: What is NDSF? What are the key components of NDSF?

The NDSF for Rwanda serves as a comprehensive blueprint, defining the digital skills essential for success in the country's evolving digital economy. Aligned with the broader Vision 2050, which aims to transform Rwanda into a prosperous knowledge-based economy, the framework outlines a roadmap for developing and delivering digital skills training programs. It also acts as a tool for assessing the digital skills of individuals and businesses, contributing to the realization of the nation's overarching vision.

Developed through collaboration with key stakeholders, including the government, private sector, academia, and civil society, the framework reflects a thorough assessment of the current state of digital skills in Rwanda. It is designed to be regularly updated to adapt to the evolving needs of the digital economy and is interconnected with other national frameworks, such as the National Employment Framework. The framework is integral to Rwanda's aspiration of becoming a digitally savvy nation and achieving knowledge-based economic goals.

Comprising seven competence areas – Digital Devices, Information and Data Literacy, Digital Communication, Digital Transacting, Digital Content Creation, Online Safety and Security, and Digital Problem Solving – the framework spans four proficiency levels: foundational, intermediate, advanced, and highly skilled. Each proficiency level is clearly defined for specific skills, ensuring a structured progression in digital skills development.

By implementing this well-designed framework, Rwanda aims to equip its population with the digital skills necessary for success in the digital economy. The framework promises benefits such as standardized digital skills provision, ensuring that all Rwandans have the capabilities required to thrive in an increasingly digitalized world.

The Need for a National Digital Skills Framework

In Rwanda's ambitious journey towards becoming a knowledge-based economy and a regional ICT hub, the strategic development of digital skills stands as a cornerstone. The NDSF emerges as a crucial instrument, offering clarity, standardization, and strategic direction to propel the country's digital vision forward.

Clarity: For Rwanda, a well-understood set of digital skills is imperative, particularly in shaping the aspirations of its youth and workforce. A clear NDSF ensures that individuals are equipped with the necessary competencies to contribute meaningfully to the realization of the country's digital objectives.

Standardization: As Rwanda attracts international tech companies and startups as well as other digital training providers, a standardized skills framework becomes essential. This framework not only aids these entities in understanding the capabilities of Rwandan professionals but also guides strategic investments in training to foster effective integration and collaboration.

Strategy: Aligned with Rwanda's Vision 2020 and subsequent visions, the importance of ICT in national development is undeniable. An NDSF becomes a strategic tool for the government and private sector, facilitating the tailoring of education and training programs to align seamlessly with national objectives.

Measurement: With an NDSF in place, Rwanda gains the ability to benchmark its digital skills progress against other nations. This not only ensures competitiveness in attracting tech investments but also positions the country as a favorable partner for global collaborations.

Economic Growth: Accelerating Rwanda's push to become a digital hub hinges on addressing digital skill gaps. A clear NDSF allows for targeted interventions, potentially leading to increased foreign investments, job creation, and overall GDP growth.

Inclusivity: Reflecting Rwanda's commitment to gender equality and inclusivity, an NDSF becomes a tool to identify and address disparities. By pinpointing areas where specific groups or regions lag, targeted training and interventions

can be introduced for a more inclusive digital landscape.

Lifelong Learning: In a fast-paced digital world, continuous skills development is imperative. An NDSF plays a pivotal role by guiding Rwandans in upgrading their digital competencies, highlighting emerging skills, and focusing on areas of continuous learning.

Range of Skills: Rwanda's young population can benefit immensely from a structured approach to digital education. Beginning with digital literacy at early education stages and progressing to fostering advanced skills in tertiary institutions, the framework can guide the entire education spectrum.

Development Context: Recognizing the potential for support from other countries and international organizations, a well-defined NDSF serves as a blueprint. It enables these entities to understand where their financial or technical support would be most effective in supporting Rwanda's digital journey.

Best Practices in the development and implementation of National Digital Skills Frameworks globally

In the contemporary global landscape, characterized by rapid technological evolution and digital transformation, a competent digital workforce is indispensable for nations aspiring to achieve sustainable socio-economic growth. The pivotal role of digital skills in enhancing productivity, fostering innovation, and driving competitiveness in a globalized world cannot be overemphasized. Consequently, governments worldwide are recognizing the need to develop comprehensive National Digital Skills Frameworks. Such frameworks aim to systematically identify, nurture, and augment the digital capabilities of their citizens, from foundational digital literacy to specialized technical proficiencies. The success of these frameworks often hinges on an intricate balance of visionary policymaking, collaborative initiatives, and continuous reassessment. Drawing upon global best practices, this exploration provides insights into the pivotal strategies that nations are deploying in their quest to elevate their digital skills landscape. Table 1 summarizes the best practices in implementing National Digital Skills Frameworks and implications for Rwanda's NDSF.

Table 1: Best practices in implementing National Digital Skills Frameworks and implications for Rwanda's NDSF

Best Practice	Country/Region	Description	Implication for Rwanda's NDSF
Comprehensive Skill Mapping	United Kingdom	The UK's Digital Skills Framework covers a spectrum from basic digital literacy to advanced technical competencies	Create a holistic digital skills framework that caters for all proficiency levels, ensuring inclusivity and broad societal reach.
Multi-sector Collaboration	United Kingdom, New Zealand, Kenya	The UK's Digital Skills Partnership, New Zealand's Digital Skills Forum, and Kenya's collaboration between the tech sector and government all underscore the importance of multi-sectoral efforts.	Establish formal platforms for collaboration between the private sector, government, NGOs, and academia to leverage collective expertise and resources.
Digital Engagement for All	Ireland	Ireland's National Digital Strategy prioritizes digital literacy for the entire populace.	Beyond vocational and technical training, there's a need to ensure the broader population is digitally literate, enhancing societal digital engagement.
Structured Digital Competence Frameworks	European Union	The EU's DigComp provides a structured approach for member states to bolster digital skills.	Consider adopting or adapting recognized international digital competence frameworks to provide a foundational structure to the NDSF.
National Digital Economy Strategies	Australia	Australia's Digital Economy Strategy focuses on preparing citizens for the opportunities of the digital transformation.	Integrate digital skills development within broader national economic strategies, aligning skills training with economic objectives.
Future-Oriented Digital Policies	South Korea	South Korea's emphasis on forward-looking digital policy.	Formulate policies that anticipate future tech trends, ensuring the populace is prepared for upcoming technological shifts.

Best Practice	Country/Region	Description	Implication for Rwanda's NDSF
Integration into Educational Systems	Finland	Finland's deep integration of digital skills in its world-renowned educational system	Embed digital skills training within the national educational curriculum, from primary to tertiary levels.
Collaborative National Strategies	Canada	Canada's collaborative approach in fostering a digitally literate nation	Promote nationwide collaborative efforts, involving central and local governments, in the rollout of the NDSF
Addressing the Digital Skills Gap	New Zealand	New Zealand's Digital Skills Forum and South Africa's focus on youth and marginalized communities	Continuously assess and address the national digital skills gap, with a keen focus on marginalized and underrepresented communities.
Digital Skills for Youth	Kenya Egypt	Kenya's Ajira Digital Program and Egypt's Digital Egypt Builders Initiative both target the youth demographic	Recognize the youth as a pivotal demographic in the digital transition, creating specific programs tailored for them.
Training Hubs and Centers of Excellence	Ghana	Ghana's Ghana-India Kofi Annan Centre of Excellence in ICT and Mauritius's collaborations with international tech entities.	Establish specialized training centers or collaborate with international entities for advanced digital skills training.

The NDSF draws from the best practices of the aforementioned nations to give Rwanda a rich tapestry of strategies to refine her digital skills provision. By synthesizing these lessons and tailoring them to Rwanda's unique socio-economic context, the nation can accelerate its journey towards a digitally proficient populace and a vibrant digital economy.

The meaning of the NDSF in Rwanda's context if fivefold:

(a) It is a tailored approach to digital empowerment: The NDSF signifies a structured and strategic approach to ensuring that every Rwandan, from urban tech professionals in Kigali to farmers in rural areas, attains a certain level of digital literacy tailored to their needs.

(b) It offers a bridge over the digital divide: Given the varying levels of digital access across Rwanda, the NDSF would represent an effort to level the playing field, ensuring that both urban and rural areas benefit from digital advancements.

(c) It enables the alignment of digital skills development with National Vision: Rwanda's Vision 2050 aims to transition the nation into a high-income, knowledge-based economy. The NDSF, in this context, would be a vital tool in realizing this vision by fostering a digitally competent workforce and populace.

(d) It recognizes the role of youth in the innovation agenda: With over 60% of Rwanda's population under the age of 25, the NDSF would focus on harnessing the potential of this youthful demographic, equipping them with the skills needed to innovate and drive Rwanda's digital transformation.

(e) It appreciates that the role of digital skills development in the socio-economic growth of Rwanda: In the Rwandan context, the NDSF would not merely be about digital literacy but also about leveraging digital skills for socio-economic development, entrepreneurship, and job creation.

In responding to the challenges and gaps identified in Chapter 2, the framework aims at achieving the following:

a) Digital Inclusion: Ensure that every Rwandan, irrespective of their socio-economic status, age, gender, or location, has access to digital tools and the knowledge to use them effectively.

b) Digital Empowerment: Equip the Rwandan workforce with the requisite digital skills to drive growth in a knowledge-based economy, ensuring that they can thrive in an increasingly digital global market.

c) Fostering Innovation: Create a conducive environment for digital innovation and entrepreneurship, transforming Rwanda into a hub for technological advancements in the region.

d) Enhancing Quality of Education: Incorporate digital tools and methodologies in the educational sector, from primary to tertiary levels, ensuring that students are digitally literate and prepared for the future.

e) Bridging the Gender Gap: Align with Rwanda's broader objectives of gender equality by ensuring that women and girls have equal access to digital resources and training, promoting their active participation in the tech

sector.

f) Bridging the Rural-Urban digital skills gap: While cities like Kigali are rapidly progressing in digital adoption, the framework will ensure that rural areas are not left behind by providing equal digital opportunities for rural inhabitants.

g) Economic Growth and Diversification: By nurturing a digitally competent populace, Rwanda can attract international tech investments, foster local startups, and ensure its economy is diversified and less reliant on traditional sectors.

h) Global Integration: Ensure that Rwanda's digital ambitions are in line with global trends, allowing for international collaborations, partnerships, and positioning Rwanda as a leading digital player in the African context.

Proposed Theory of Change for Rwanda's NDSF

The Theory of Change (ToC) for the NDSF outlines a comprehensive approach for achieving long-term development goals for Rwanda. The following are areas of focus for the ToC.

- Curriculum Development and Standardization: Creating a comprehensive, standardized digital skills curriculum that is aligned with both current industry needs and future technological trends.
- Stakeholder Engagement and Partnership Building: Involving key stakeholders including government agencies, educational institutions, private sector companies, non-profits, and community organizations in the development and implementation of the framework.
- Teacher and Trainer Capacity Building: Enhancing the skills and methodologies of educators and trainers to effectively deliver digital education and training.
- Infrastructure and Resource Availability: Ensuring the necessary infrastructure, such as internet connectivity, digital tools, and educational materials, is in place for effective digital skills training.
- Access and Inclusion Measures: Developing strategies to ensure equitable access to digital education across different regions, socio-economic groups, and for individuals with disabilities.
- Policy Development and Government Support: Advocating for and supporting the development of policies that foster digital literacy and skills development as national priorities.
- Private Sector and Industry Collaboration: Collaborating with the private sector and industry to ensure curriculum relevance, provide practical training opportunities, and understand future skill requirements.
- Monitoring, Evaluation, and Feedback Mechanisms: Establishing robust systems for monitoring progress, evaluating impact, and incorporating feedback for continuous improvement.
- Public Awareness and Advocacy: Conducting campaigns and advocacy programs to raise public awareness about the importance of digital literacy and the opportunities it presents.
- Funding and Financial Sustainability: Identifying and securing sustainable funding sources for the long-term implementation and scaling of the framework.
- Job Market Alignment and Employment Opportunities: Ensuring the digital skills taught are aligned with job market demands and support increased employability in the digital economy.
- Research and Innovation in Digital Education: Promoting research and innovative approaches in digital education to keep pace with technological advancements.
- Youth Engagement and Future Skills Preparation: Specifically focusing on youth engagement and preparing the younger generation for future digital challenges and opportunities.
- International Cooperation and Benchmarking: Engaging in international cooperation to benchmark against global best practices and standards in digital education and skills development.

Table 2: NDSF's Theory of Change

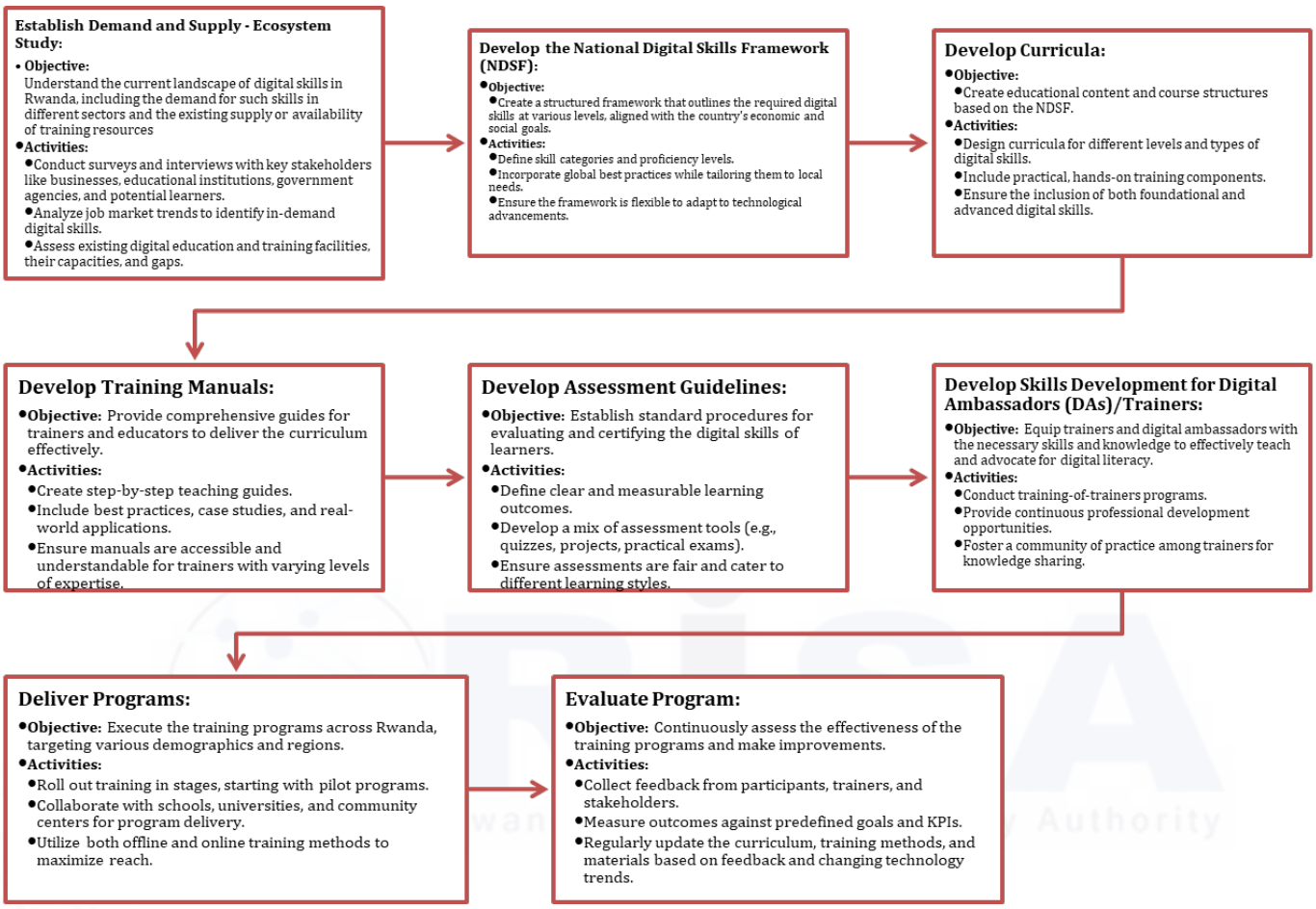
Focus Area	Inputs	Activities	Short-term Outcomes	Intermediate Outcomes	Long-term Goals
Curriculum Development and Standardization	• Educational experts, • Industry trend analyses, • Curriculum development tools, • Stakeholder feedback	• Design a comprehensive curriculum with experts, • analyze industry trends, • update curriculum regularly, • incorporate feedback	• Updated and relevant digital skills curriculum, • increased stakeholder satisfaction	• Enhanced quality of digital education, • curriculum aligned with industry needs	Develop a workforce well-equipped with digital skills to improve national competitiveness.
Stakeholder Engagement and Partnership Building	• Contact lists of stakeholders, • Collaboration platforms, • Engagement strategies	• Organize stakeholder meetings, • maintain collaborative platforms, • implement engagement plans	• Stronger stakeholder relationships, • increased cross-sector collaboration	• Effective multi-sectoral support for digital skills initiatives	Foster a cohesive, multi-stakeholder approach that leads to broader societal engagement and support.
Teacher and Trainer Capacity Building	• Professional development programs, • Expert trainers, • Digital teaching tools	• Conduct training programs, • host expert-led workshops, • support educators with digital resources	• Improved educator competence in digital skills delivery	• Higher quality of digital skills training, • increased teacher confidence	Cultivate a generation of students proficient in digital skills, enhancing their employability and capacity for innovation.
Infrastructure and Resource Availability	• Budget for infrastructure, • Technology provider partnerships, Infrastructure assessments	• Assess existing infrastructure, • upgrade technology and resources, • partner with technology providers	• Improved access to digital training tools and resources	• Enhanced capacity for digital education delivery	Ensure widespread, equitable access to high-quality digital education, thereby reducing the digital divide.
Access and Inclusion Measures	• Data on access disparities, • Inclusive education policies, • Assistive technologies	• Identify access gaps, • develop inclusive strategies, • implement policies, • provide assistive technologies	• Increased digital education access for marginalized groups	• Reduced inequalities in digital skills acquisition	Achieve inclusive digital literacy, leading to broader social and economic participation and empowerment.

Focus Area	Inputs	Activities	Short-term Outcomes	Intermediate Outcomes	Long-term Goals
Policy Development and Government Support	• Digital literacy research, • Policy experts, • Government collaboration channels	• Conduct policy-supportive research, • draft policy recommendations, • engage with government officials	• Enhanced understanding of digital literacy needs, • drafted digital policy recommendations	Adoption and implementation of supportive digital skills policies	Create a supportive policy environment that fosters a digitally literate and empowered society.
Private Sector and Industry Collaboration	• Industry contacts, • Internship frameworks, • Industry skill requirements data	• Establish industry partnerships, • design internship programs, • align curriculum with industry needs	• Established industry partnerships, • internship programs in place	• Curriculum aligned with real-world industry needs, • enhanced student employability	Develop a workforce skilled for current and future industry needs, bolstering the national economy.
Monitoring, Evaluation, and Feedback Mechanisms	• Evaluation tools, • Data collection methods, • Expert evaluators	• Develop monitoring and evaluation systems, • collect and analyze data, • adjust NDSF based on findings	• Operational monitoring and evaluation systems, • initial feedback collected and analyzed	• Data-informed adjustments to the NDSF, • improved effectiveness and efficiency	Maintain a continuously improving digital skills framework that is responsive to evolving needs and conditions.
Public Awareness and Advocacy	• Marketing tools, • Media partnerships, • Advocacy campaign plans	• Execute awareness campaigns, • partner with media, • organize public advocacy events	• Increased public awareness of the importance of digital literacy, • successful media and public events	• Wider public understanding and support for digital skills development	Build a society that values and supports digital literacy, contributing to inclusive digital transformation.
Funding and Financial Sustainability	• List of potential funders, • Grant writing expertise, • Financial management plans	• Identify donors, • write grant proposals, • develop sustainability plans	• Identification of funding sources, submitted grant proposals	• Secured funding for NDSF initiatives, established financial sustainability plans	Ensure the long-term financial stability of the NDSF, securing ongoing digital skills development.

Focus Area	Inputs	Activities	Short-term Outcomes	Intermediate Outcomes	Long-term Goals
Job Market Alignment and Employment Opportunities	• Labor market reports, • Employer engagement strategies, • Career guidance resources	• Analyze labor market, • engage employers, • provide career guidance and placement support	• Improved understanding of current labor market needs, • stronger relationships with employers	• Enhanced alignment of digital skills training with market demands, • increased student career readiness	Shape a workforce highly attuned to market needs, contributing to economic growth and reduced unemployment.
Research and Innovation in Digital Education	• Research institution partnerships, • Educational technology trends, • Innovation incubators	• Collaborate with research bodies, • stay updated on tech trends, • encourage innovative learning methods	• Established partnerships for research, • updated curriculum with latest tech trends	• Advancements in digital education methods, • fostering a culture of innovation in learning	Position Rwanda's digital education at the forefront, keeping pace with global technological advancements.
Youth Engagement and Future Skills Preparation	• Youth engagement strategies, • Emerging skills data, • Youth organization collaborations	• Implement youth-centric programs, • incorporate emerging skills, • partner with youth organizations	• Enhanced engagement of youth in digital skills programs, • integration of future skills into curriculum	• Youth equipped with skills relevant for future challenges and opportunities	Prepare a future-ready, digitally literate younger generation, driving innovation and societal progress.
International Cooperation and Benchmarking	• International agreements, • Global education standards, • Benchmarking studies	• Form international partnerships, • conduct benchmarking, • integrate global best practices	• Established international networks and shared learning, initial benchmarking completed	• Alignment with international digital education standards, adoption of global best practices	Enhance the global competitiveness of Rwanda's workforce and gain international recognition in digital education.

Deployment for the NSDF

To effectively deploy digital skills in Rwanda, a comprehensive approach encompassing various stages is essential. Each step builds on the previous one, ensuring a cohesive and sustainable implementation. Here's a detailed elaboration of the proposed steps:



Competencies Areas, Competencies and Proposed Solutions

A digital competence area, also known as a competency area or competence domain, refers to a specific category or field of knowledge, skills, and abilities related to the effective use of digital technologies and tools. It encompasses a set of competencies that individuals should possess to navigate and excel in a particular aspect of the digital world.

Within the broader domain of digital competence, there are various competency areas such as Information and Data Literacy, Communication and Collaboration, Digital Content Creation, Safety and Security, Problem Solving, and more. Each of these areas focuses on a specific aspect of digital skills and knowledge. These core competencies, knowledge and skills for the NDSF are presented in Table 3.

Table 3: Competencies Areas, Competencies and Proposed Solutions

Competency Areas	Description	Competence Components	Relevant Gaps to be Addressed
Digital Devices Proficiency	The ability to effectively and confidently use various digital devices.	Digital Devices	Enhance access to and knowledge of modern smart devices in especially rural areas, indicating to address the gap in technology adoption and understanding.
		Operating Smart Devices	Improve adaptation to rapidly evolving smartphone interfaces and features, along with underutilization due to knowledge gaps.
		Operating Systems (OS)	Reduce overreliance on a single operating system due to limited exposure to various systems and difficulties in managing updates and version changes.
		Software Applications	Expand knowledge of software applications for personal and professional development and challenges in using specialized software, exacerbated by a lack of local language support and tutorials.
		Digital Device Security	Enhance awareness of risks associated with unprotected devices and poor adoption of essential security practices like strong passwords and encryption.
		Data Backup and Recovery	Increase frequency of data backup habits leading to potential data loss, coupled with knowledge of data recovery methods or tools.
Information and Data Literacy	The ability to locate, evaluate, interpret, and use information and data effectively.	Search and Retrieval of Data, Information, and Digital Content	Enhance knowledge of search techniques, over-reliance on a single search engine, and overcome difficulties in data extraction from complex databases.
		Management of Data, Information, and Digital Content	Increase knowledge of data management tools, challenges in content categorization, tagging, and organization, and awareness of cloud storage benefits.
		Analysis and Visualization of Data, Information, and Digital Content	Enhance ability to effectively interpret and represent data, limited proficiency in tools like Excel and Tableau, create easy in deriving insights from complex data, and challenges in creating clear visual data representations.
		Evaluation of Data, Information, and Digital Content	Improve assessment of the reliability and relevance of digital content, awareness of cross-referencing importance, and critical analysis of misleading or biased information.
		Privacy and Security of Data, Information, and Digital Content	Enhance awareness of personal data protection, knowledge of basic cybersecurity practices, and reduce tendency to overshare on social media.

Competency Areas	Description	Competence Components	Relevant Gaps to be Addressed
Digital Communication	The ability to exchange information, ideas, or messages between individuals or groups.	Digital Communication Tools	Increase knowledge of communication platforms and tools for effective digital communication.
		Online Social Interaction	Enhance knowledge of navigating and awareness of social media etiquettes, and reduce risk of misunderstandings and oversharing due to privacy settings ignorance.
		Digital Presentation Skills	Address the challenges in effective digital presentations due to insufficient skills and lack of access to necessary tools.
		Digital Professionalism	Improve in online professional behavior to overcome unprofessionalism and poor personal-professional online balance.
		Sharing Information and Content Using Digital Technologies	Overcome risks from oversharing or insecure sharing, limited understanding of secure sharing methods, and over-reliance on a single platform.
		Engaging in Citizenship through Digital Technologies	Create familiarity with online civic duties and rights and limited access to government digital platforms for civic engagement.
		Managing Digital Identity	Enhance ability to maintain a consistent and secure online persona and lack of awareness of identity protection tools.
		Virtual Meetings and Collaboration	Overcome difficulties in setting up and participating in online meetings and collaborating on shared platforms due to skill and access limitations.
Digital Transacting	The ability to conducting business or financial transactions, typically in a digital or electronic format	Access of e-Government and Other Online Services	Increase access, awareness, navigation, connectivity, and digital literacy regarding e-Government services.
		Digital Financial Literacy	Increase familiarity with online banking, scam concerns, and preference for traditional banking.
		Online Shopping and E-commerce	Reduce apprehension about online shopping, security concerns, and increase e-commerce awareness.
		Digital Payment Systems	Overcome difficulties and security concerns with digital payments, and reliance on cash.
		Electronic Forms and Applications	Reduce challenges with digital literacy and access, affecting the use of online forms.
		Digital Contracts and Agreements	Address uncertainty and mistrust regarding digital contracts and legal implications.

Competency Areas	Description	Competence Components	Relevant Gaps to be Addressed
Digital Content Creation	The ability to generate and produce digital media	Content Creation Tools	Address difficulties in utilizing and training for advanced digital content creation tools, along with resources for local language learning and relevant content design.
		Content Curation	Address challenges in managing, curating, and distinguishing the quality of digital content, compounded by limited knowledge of curation tools.
		Multimedia Production	Address hurdles in producing multimedia content due to limited training, inadequate infrastructure, and a need for culturally relevant production skills.
		Content Optimization	Enhance understanding of content enhancement for digital platforms, SEO, content analytics, and optimization techniques.
		Intellectual Property Rights	Expand knowledge and training regarding digital rights and intellectual property, emphasizing the need for education in legal and royalty-free content usage.
Online Safety and Security	Safety in a general context refers to the condition of being free from harm, danger, or risk.	Cybersecurity Awareness	Enhance knowledge in identifying cyber threats like phishing and are not familiar with important security practices such as updating software and avoiding suspicious links.
		Online Privacy Protection	Create awareness about online privacy tools, data protection rights, and safe digital practices, leading to risky behaviors like sharing sensitive information on unsecure platforms.
		Digital Well-being	Reduce reliance on digital devices is causing health issues like digital eye strain, with a low awareness of the need for breaks from digital screens and the mental health effects of negative online interactions.
		Digital Citizenship	Address the misunderstanding about responsible digital behavior, the impact of spreading false information, and the need for education on handling online harassment.
		Digital Emergency Response	Prepare citizens for digital emergencies like data breaches, lacking knowledge in emergency response, cybersecurity strategies, and relevant local resources.

Competency Areas	Description	Competence Components	Relevant Gaps to be Addressed
Digital Problem Solving	Problem solving is the process of identifying, analyzing, and resolving challenges or issues.	Digital Troubleshooting	Increase skills in resolving software and hardware issues, limited resources for learning troubleshooting, and few practical experience opportunities.
		Coding and Programming	Increase the understanding of software development basics especially for those with few local education opportunities, limited exposure to modern programming languages, and a lack of mentorship for aspiring developers.
		Cybersecurity Incident Response	Increase the proportion of trained cybersecurity professionals, address the inadequacy of infrastructure for incident management, increase cybersecurity awareness, and number training programs in cybersecurity response.

Proficiency Levels

Digital skills proficiency levels represent different stages of expertise or mastery in various digital competencies. These levels help assess an individual's or a group's ability to use digital tools, technologies, and resources effectively.

Table 4 presents a high level matrix for digital skills proficiency levels with varying levels of complexity of tasks, along with the cognitive domain and autonomy associated with each proficiency level. Each level of proficiency is divided into two sub-levels to provide a comprehensive overview.

In this matrix:

a) ***Proficiency Levels*** represent different stages of expertise, ranging from foundational knowledge to highly specialized skills.

b) ***Complexity of Task*** indicates the level of difficulty associated with tasks at each proficiency level. As proficiency increases, the tasks become more complex and challenging;

c) ***Autonomy*** denotes the degree of independence and self-directedness expected at each proficiency level. Higher proficiency levels typically involve greater autonomy; and

d) ***Cognitive Domain*** relates to the types of cognitive processes required at each level, with a shift from basic remembering and understanding to more advanced skills like analyzing, evaluating, and creating as proficiency increases.

This matrix provides a structured overview of digital skills competencies across different proficiency levels, highlighting the complexity of tasks, autonomy, and cognitive engagement associated with each level, along with corresponding examples for each category. A detailed matrix is annexed to this report.

Table 4: Digital skills proficiency levels

Proficiency Level	Complexity of Task	Autonomy	Cognitive Domain	Examples
Foundation	Basic and straightforward tasks	Relies on clear instructions	Primarily involves basic knowledge and skills.	• Navigating smart devices • Navigating web browsers. • Setting up an email address
Intermediate	More complex tasks and problem-solving.	Can work independently with help.	Requires critical thinking and problem-solving.	• Conducting simple internet searches. • Setting up and customizing personal websites. • Managing and organizing emails effectively. • Using spreadsheet software for data analysis.
Advanced	In-depth and advanced tasks.	Able to work independently.	Involves higher-order thinking and analysis.	• Troubleshooting computer and software issues. • Developing and maintaining complex web applications. • Designing and executing digital marketing campaigns. • Programming and automation of complex tasks.
Highly Specialized	Highly specialized tasks, domain-specific.	Works independently with expertise.	Demands advanced expertise and innovation.	• Analyzing and visualizing large datasets for decision-making. • Cybersecurity experts protecting digital assets. • Data scientists developing machine learning models. • Software architects designing complex systems. • Ethical hackers conducting penetration testing.

Chapter Four: Operational Plan for the National Digital Skills Framework

This operational plan outlines the aspects for implementing the framework effectively. It provides a roadmap for achieving the goals and objectives of the framework. See full Operation plan in Annex. The specific tasks to be accomplished under each of the implementation aspects are described in Table 5.

Table 5: Description of implementation aspects and key activities

Implementation Aspect	Description	Key Activities
Goal Setting	Set clear, specific goals for the framework, considering the nation's digital skill requirements, economic priorities, and social development objectives.	Identify specific digital skill gaps; Align goals with national development plans
Governance Structure	Create a governance body like a task force, committee, or department to manage and coordinate the framework, focusing on decision-making, policy development, and resource allocation.	Formulate the structure; Define roles and responsibilities; Allocate resources
Stakeholder Engagement	Involve key entities such as government bodies, educational institutions, industries, NGOs, private sectors, and community groups to encourage collaboration, gather input, and build partnerships for joint ownership and involvement.	Conduct meetings and workshops; Foster partnerships; Seek input and collaboration
Curriculum Development	Design comprehensive, standardized digital skill curricula for various skill levels, in partnership with educational bodies, industry experts, and specialists, ensuring relevance and alignment with industry demands.	Curriculum design workshops; Integration of industry needs; Future skills forecasting
Teacher Training & Capacity	Offer training and professional development for educators to enhance their digital skills and teaching methods, providing the necessary tools, resources, and support.	Organize training programs; Provide educational resources and tools; Support pedagogical innovation
Partnership Development	Establish partnerships with the private sector, industry groups, NGOs, research entities, and international organizations, collaborating on curriculum design, integrated learning opportunities, mentorship programs, and resource sharing.	Establish partnership agreements; Collaborate on program design and resource sharing
Infrastructure Development	Ensure availability of essential infrastructure and resources for digital skills training, including device access, internet connectivity, digital platforms, and physical learning spaces, while addressing any gaps.	Assess infrastructure needs; Develop and upgrade facilities; Ensure equitable access
Training Program Delivery	Implement and conduct digital skills training using varied methods like in-person, blended, online, and practical exercises, ensuring program quality and effectiveness.	Roll out training programs; Monitor program quality; Adapt training methods as needed
Monitoring & Evaluation	Set up a comprehensive framework to monitor progress, measure outcomes, and evaluate the framework's impact, using data on skill development, employment rates, and feedback.	Develop monitoring tools; Collect and analyze data; Report on progress and make adjustments
Awareness & Outreach	Run campaigns and outreach to highlight the importance of digital skills, boost training program participation, and increase public awareness about digital literacy's benefits.	Organize public campaigns; Engage media and online platforms; Highlight success stories
Sustainability & Scaling	Develop strategies for the framework's long-term sustainability and growth, including funding, public-private partnerships, and integration into national plans.	Explore funding options; Develop public-private partnerships; Plan for expansion and integration

Annexes

Annex 1: Detailed Matrix for Digital Skills Proficiency Levels

Competency Area: Digital Devices Proficiency

Competencies	Foundation	Intermediate	Advanced	Highly Specialized
Hardware Familiarity	Basic knowledge of smart devices	Proficient in identifying and understanding hardware components.	Expert in hardware components, can build and upgrade systems.	Pioneer in hardware innovation, designs new components or systems.
	Can perform basic hardware usage and maintenance of smart devices.	Competent in hardware usage and maintenance, can troubleshoot and repair hardware issues. Reset to factory settings, formatting, etc.	Proficient in advanced maintenance tasks, such as soldering, changing phone screen, replace the spare part or component-level repair.	Innovator in hardware maintenance, develops new repair techniques.
	Basic understanding of hardware compatibility with operating systems.	Competent in selecting compatible hardware for specific tasks.	Expert in hardware compatibility, can design and optimize custom setups.	Pioneer in hardware compatibility, sets industry standards.
Peripheral Devices Familiarity:	Basic knowledge of common peripheral devices	Proficient in using a wide range of peripherals (e.g., printers, scanners).	Expert in configuring and troubleshooting peripherals.	Innovator in peripheral device development or integration.
	Can connect and set up basic peripheral devices.	Competent in configuring and optimizing peripheral connectivity.	Proficient in advanced peripheral setups (e.g., multi-monitor, custom input devices).	Pioneer in peripheral device connectivity, develops new interfaces.
	Basic understanding of peripheral compatibility with OS and software.	Competent in selecting compatible peripherals for specific tasks.	Expert in peripheral compatibility, can integrate custom devices.	Leader in peripheral device compatibility, sets industry benchmarks.
Operating Systems Familiarity	Basic understanding of common operating systems (e.g., android, IoS, Windows, macOS, Linux).	Proficient in using and troubleshooting operating systems (install or update the operating system).	Expert in multiple operating systems, can optimize performance.	Pioneer in OS development or customization, sets industry standards.
	Can perform basic troubleshooting tasks (e.g., restart, install software).	Competent in diagnosing and resolving common OS-related issues.	Proficient in advanced troubleshooting, can handle complex problems.	Innovator in OS troubleshooting, develops new diagnostic tools.

	Basic OS configuration skills (e.g., changing display settings).	Proficient in configuring OS settings, installing drivers, and optimizing performance.	Expert in OS customization, can set up network configurations, and security settings.	Pioneer in OS configuration, develops custom OS builds and environments.
Software Applications	Basic knowledge of common software applications (e.g., word processors, web browsers).	Proficient in using a variety of software for typical tasks.	Expert in advanced software applications, can develop custom scripts or macros.	Innovator in software application development, creates new software solutions.
	Can download, install and update basic software applications.	Competent in software installation, configuration, and updating.	Proficient in advanced software installation techniques (e.g., virtualization).	Pioneer in software deployment, sets new standards for installation processes.
	Basic ability to troubleshoot common software issues.	Competent in diagnosing and resolving software problems.	Expert in advanced software troubleshooting, can debug complex software.	Leader in software problem-solving, develops new debugging techniques.
Digital Devices Security	Basic understanding of digital and cyber security principles.	Competent in identifying and mitigating common security risks.	Proficient in advanced security practices, can conduct security audits.	Innovator in digital security, develops new security protocols.
	Can apply basic security measures (e.g., password management).	Proficient in implementing security measures (e.g., firewall setup, encryption).	Expert in advanced security strategies, can design and implement complex security architectures.	Leader in digital security, sets industry standards for protection.
	Awareness of basic incident response procedures (e.g., reporting breaches).	Competent in handling security incidents and data breaches.	Proficient in advanced incident response, can lead incident recovery efforts.	Visionary in incident response, shapes new approaches to handling incidents.
Data Backup and Recovery:	Basic knowledge of data backup methods (e.g., manual backups).	Proficient in implementing regular data backups and scheduling.	Expert in advanced backup solutions (e.g., disaster recovery planning).	Innovator in data backup, develops new backup technologies.
	Awareness of basic data recovery methods (e.g., file restoration).	Competent in data recovery techniques and can restore lost data.	Proficient in advanced data recovery, can recover data from complex failures.	Pioneer in data recovery, creates innovative data rescue methods.
	Understanding of the importance of disaster recovery planning.	Competent in developing disaster recovery plans and testing them.	Expert in disaster recovery planning and can design complex, fail-safe systems.	Visionary in disaster recovery, sets industry benchmarks for resilience.

Competency Area: Information and Data Literacy

Proficiency Levels/ Competencies	Foundation	Intermediate	Advanced	Highly Specialized
Search and Retrieval of Data, Information and Digital Content	-Basic understanding of information literacy. - Basic understanding of information or data searching	- Proficient in using popular search engines, job portals, e-Recruitment, e-Procurement, smart administration, e-learning portals etc.	- Expert in searching data or information (expert in search engines, posting jobs, customize e-learning portals like MOOCS, etc	- Pioneer in developing custom search solutions or can develop different applications or portals for searching information.
	- Can enter basic queries for information.	- Can use search operators and filters effectively.	- Can create custom search engines or plugins.	- Sets industry standards for search technology.
	- Awareness of common online information sources.	- Competent in identifying reputable sources.	- Proficient in evaluating information credibility.	- Innovates in information source identification.
	- Basic understanding of primary vs. secondary sources.	- Can differentiate between credible and biased sources.	- Can lead information source verification initiatives.	- Defines new paradigms in source evaluation.
	- Aware of basic search filters (e.g., date, location).	- Proficient in using advanced search filters.	- Expert in creating custom search operators and filters.	- Pioneer in search filter design and optimization.
	- Basic ability to combine keywords in searches.	- Can use Boolean logic for precise information retrieval.	- Can lead Boolean search optimization projects.	- Defines new paradigms in Boolean search.
	- Basic knowledge of specialized search tools (e.g., PubMed).	- Competent in using domain-specific search platforms.	- Proficient in optimizing search settings for efficiency.	- Innovates in custom search tool development.
	- Familiarity with academic databases.	- Can perform in-depth research using specialized tools.	- Can lead the integration of search tools into workflows.	- Defines new paradigms in specialized search tools.
	- Familiarity with basic information retrieval methods.	- Proficient in using structured databases for retrieval.	- Expert in information retrieval algorithms.	- Pioneer in developing next-gen retrieval systems.
	- Can perform basic searches in online libraries.	- Can design and execute complex database queries.	- Can lead information retrieval system development.	- Sets industry benchmarks for retrieval technology.
	- Awareness of data and content categorization.	- Competent in using metadata for classification.	- Proficient in developing taxonomy and ontology.	- Innovates in data/content classification methodologies.

Proficiency Levels/ Competencies	Foundation	Intermediate	Advanced	Highly Specialized
	- Can use basic tags and labels for organization.	- Can implement classification systems for digital assets.	- Can lead knowledge organization initiatives.	- Defines new paradigms in classification systems.
	- Awareness of taxonomies and knowledge structures.	- Competent in using taxonomies for information retrieval.	- Proficient in creating and managing knowledge ontologies.	- Pioneer in developing novel ontological frameworks.
	- Basic understanding of information classification.	- Can apply taxonomies to organize information effectively.	- Can lead knowledge management and ontology projects.	- Sets industry standards in ontology design.
	- Awareness of NLP and its applications.	- Competent in using NLP tools for information extraction.	- Proficient in developing NLP-based search solutions.	- Pioneer in NLP-driven search and retrieval.
	- Basic understanding of text analysis.	- Can use NLP for sentiment analysis and entity recognition.	- Can lead NLP integration in search systems.	- Sets industry standards for NLP-driven retrieval.
	- Familiarity with voice and multimedia search.	- Proficient in voice search and multimedia retrieval.	- Expert in developing voice and multimedia search apps.	- Innovates in voice and multimedia search technology.
	- Can use voice assistants for basic queries.	- Can optimize multimedia content for searchability.	- Can lead voice and multimedia search initiatives.	- Defines new paradigms in voice and multimedia search.
Management of Data, Information and Digital Content	- Understands basic data collection methods and tools.	- Proficient in data collection techniques and tools. -can develop a simple data collection tool (google form etc)	- Expert in designing and optimizing data collection processes.	- Pioneer in developing innovative data collection methodologies.
	- Can input data accurately.	- Can manage and clean collected data effectively.	- Can lead data collection teams and initiatives.	- Sets industry standards in data collection practices.
	- Familiar with basic data storage solutions.	- Competent in managing data storage systems.	- Proficient in optimizing data storage and retrieval methods.	- Innovates in data storage technologies and architectures.
	- Understands the importance of data security.	- Can design and implement data backup strategies.	- Can lead data infrastructure projects and migrations.	- Defines new paradigms in data storage and retrieval.

Proficiency Levels/ Competencies	Foundation	Intermediate	Advanced	Highly Specialized
	- Can perform basic data cleaning tasks.	- Proficient in data cleaning techniques and tools.	- Expert in developing automated data validation processes.	- Pioneer in data quality assurance methodologies.
	- Understands data quality issues.	- Can identify and resolve data inconsistencies.	- Can lead data quality improvement initiatives.	- Sets industry benchmarks in data cleaning and validation.
	- Understands basic data analysis concepts.	- Proficient in data analysis using statistical tools.	- Expert in advanced data analysis techniques and modeling.	- Innovates in data analysis algorithms and predictive modeling.
Analysis and Visualization of Data, Information and Digital Content	- Understands basic data sources and collection methods.	- Proficient in data collection from various sources.	- Expert in designing and executing data collection plans.	- Pioneer in developing novel data collection techniques.
	- Can clean and preprocess data to remove errors.	- Competent in data cleaning and validation processes.	- Proficient in automating data cleaning workflows.	- Sets industry standards in data quality processes.
	- Familiar with basic statistical concepts.	- Competent in applying statistical analysis techniques.	- Expert in advanced statistical modeling and analysis.	- Innovates in statistical modeling and data analysis.
	- Can create basic charts and graphs.	- Proficient in data visualization and charting tools.	- Expert in designing complex data visualizations.	- Sets industry benchmarks in data visualization.
	- Can identify simple trends and patterns in data.	- Competent in deriving insights from data analysis.	- Proficient in generating actionable insights.	- Innovates in uncovering unique and valuable insights.
	- Understands the basics of data-driven decision-making.	- Can communicate findings effectively through reports.	- Expert in influencing strategic decisions with data.	- Pioneer in transforming industries with data insights.
	- Awareness of the importance of data storytelling.	- Proficient in conveying data-driven narratives.	- Expert in crafting compelling data stories.	- Sets industry standards in data-driven storytelling.
	- Basic knowledge of narrative structures and visualization.	- Can engage diverse audiences with data stories.	- Proficient in using data storytelling for advocacy.	- Defines new paradigms in data-driven communication.
	- Familiar with basic data integration techniques.	- Competent in integrating data from various sources.	- Expert in building data integration pipelines.	- Innovates in data fusion strategies and technologies.
	- Understands data consistency and data warehousing.	- Proficient in data governance and metadata management.	- Can lead enterprise-wide data integration initiatives.	- Sets industry benchmarks in data integration.

Proficiency Levels/ Competencies	Foundation	Intermediate	Advanced	Highly Specialized
	- Awareness of big data concepts and technologies.	- Proficient in working with big data tools and platforms.	- Expert in big data analytics and real-time processing.	- Pioneer in developing cutting-edge big data solutions.
	- Aware of machine learning and artificial intelligence.	- Proficient in machine learning model development.	- Expert in AI and deep learning techniques.	- Innovates in AI research and applications.
Evaluation of Data, Information, and Digital Content	- Understands the importance of data quality.	- Proficient in data quality assessment techniques.	- Expert in designing and conducting data quality audits.	- Pioneer in developing data quality frameworks.
	- Can identify common data quality issues.	- Can develop data quality improvement plans.	- Can lead organization-wide data quality initiatives.	- Sets industry standards in data quality assessment.
	- Aware of content evaluation criteria.	- Competent in evaluating digital content effectively.	- Proficient in developing content evaluation standards.	- Innovates in content evaluation methodologies.
	- Can identify plagiarism and copyright issues.	- Can conduct comprehensive content audits.	- Can lead content quality improvement projects.	- Sets industry best practices in content evaluation.
	- Familiar with basic user experience (UX) principles.	- Proficient in conducting UX assessments and usability tests.	- Expert in advanced UX research and user testing.	- Pioneer in UX assessment methodologies and innovations.
	- Can identify common usability issues.	- Can analyze user feedback and behavior data.	- Can lead UX optimization projects.	- Sets industry standards in UX evaluation.
	- Basic understanding of information retrieval concepts.	- Competent in assessing information retrieval systems.	- Proficient in designing and conducting retrieval experiments.	- Innovates in information retrieval research.
	- Can identify common challenges in finding information.	- Can analyze search engine performance and relevance.	- Can lead information retrieval optimization initiatives.	- Sets industry benchmarks in information retrieval.
	- Aware of various data sources and their characteristics.	- Competent in evaluating data source reliability and credibility.	- Proficient in designing data source validation strategies.	- Pioneer in data source evaluation methodologies.
	- Can identify potential bias in data sources.	- Can assess the trustworthiness of data sources.	- Can lead data source validation and integration projects.	- Sets industry standards in data source evaluation.
	- Understanding of basic digital analytics metrics.	- Proficient in analyzing digital analytics data.	- Expert in advanced digital analytics and predictive modeling.	- Innovates in digital analytics and modeling techniques.

Proficiency Levels/ Competencies	Foundation	Intermediate	Advanced	Highly Specialized
	- Can interpret website traffic and engagement data.	- Can identify trends and insights from analytics data.	- Can lead data-driven decision-making initiatives.	- Sets industry benchmarks in digital analytics.
	- Awareness of data privacy and security principles.	- Competent in assessing data privacy and security measures.	- Proficient in conducting privacy impact assessments (PIAs).	- Pioneer in shaping privacy and security best practices.
	- Understands common cybersecurity threats.	- Can identify vulnerabilities and risks in systems.	- Can lead security audits and incident response efforts.	- Sets industry standards in privacy and security.
Privacy and Security of Data, Information and Digital Content	- Basic understanding of data privacy principles.	- Proficient in data privacy regulations and compliance.	- Expert in global data privacy laws and standards.	- Pioneer in shaping data privacy legislation.
	- Understands the importance of user consent.	- Can design and implement data privacy policies.	- Can lead privacy impact assessments (PIAs).	- Sets industry standards for data privacy.
	- Awareness of common cybersecurity threats.	- Competent in implementing security best practices.	- Proficient in threat detection and incident response.	- Innovates in cybersecurity strategies and technologies.
‘	- Understands password security and basic encryption.	- Can conduct security audits and risk assessments.	- Can lead security incident response teams.	- Defines new paradigms in cybersecurity.
	- Knows how to handle sensitive data with care.	- Competent in secure data storage and transmission.	- Proficient in secure data disposal and destruction.	- Pioneer in developing ultra-secure data handling methods.
	- Understands access control and user privileges.	- Can design and implement access control policies.	- Can lead security awareness and training programs.	- Sets industry benchmarks in data security.
	- Awareness of encryption techniques and data protection methods.	- Proficient in data encryption and data protection methods.	- Expert in encryption key management and data protection strategies.	- Innovates in encryption and data protection technologies.
	- Understands the importance of data encryption in transit and at rest.	- Can implement encryption protocols and secure data storage.	- Can lead encryption strategy and implementation initiatives.	- Sets industry standards in data encryption and protection.

Proficiency Levels/ Competencies	Foundation	Intermediate	Advanced	Highly Specialized
	- Aware of the concept of "Privacy by Design" in product development.	- Proficient in integrating privacy into system design and development.	- Expert in creating privacy-centric product architectures.	- Pioneer in privacy-centric innovation and product design.
	- Understands the principles of data minimization and user consent.	- Can conduct privacy impact assessments during system design.	- Can lead privacy by design initiatives in complex projects.	- Defines new paradigms in privacy-centric product design.
	- Awareness of common cybersecurity threats and vulnerabilities.	- Proficient in identifying and assessing threats and vulnerabilities.	- Expert in developing and implementing threat mitigation strategies.	- Innovates in threat analysis and vulnerability management.
	- Understands the importance of patch management and system hardening.	- Can perform vulnerability assessments and penetration testing.	- Can lead security incident response and threat hunting teams.	- Sets industry benchmarks in threat analysis and vulnerability management.
	- Awareness of industry-specific data privacy and security regulations.	- Proficient in ensuring compliance with relevant regulations.	- Expert in developing and maintaining compliance frameworks.	- Pioneer in shaping regulatory standards and compliance practices.
	- Understands the consequences of non-compliance and data breaches.	- Can conduct compliance audits and assessments.	- Can lead compliance and regulatory compliance programs.	- Sets industry standards in compliance and regulatory practices.
	- Basic understanding of incident response procedures.	- Competent in incident detection and response protocols.	- Proficient in leading incident response and recovery efforts.	- Innovates in incident response and recovery strategies.
	- Aware of the importance of incident documentation and reporting.	- Can analyze incident data to improve response processes.	- Can lead post-incident reviews and develop response playbooks.	- Defines new paradigms in incident response and recovery.

Competency Area: Digital Communication

Proficiency Levels/ Competencies	Foundation	Intermediate	Advanced	Highly Specialized
Digital Communication Tools	- Basic email account setup and navigation. -Basic use of digital devices for communication (phone call, send email, send sms, access social media).	- Proficient in email management and organization. -Conference call, send bulk SMS, use of mail merge,	- Expert in advanced email features and productivity.	- Pioneer in email innovation and optimization.
	- Sending and receiving emails with attachments.	- Can use email filters, labels, and rules effectively.	- Can integrate email with other tools and platforms.	- Sets industry standards for email efficiency.
	- Awareness of instant messaging platforms.	- Competent in using instant messaging for work tasks.	- Proficient in managing team communication channels.	- Innovates in real-time messaging solutions.
	- Basic knowledge of sending messages and emojis.	- Can set up and use chat groups and channels.	- Can lead team collaboration using messaging apps.	- Defines new paradigms in real-time communication.
	- Familiar with video conferencing tools	- Proficient in setting up and joining video meetings.	- Expert in advanced video conferencing features.	- Pioneer in virtual collaboration and remote work.
	- Can participate in video calls and screen sharing.	- Can manage and schedule video meetings effectively.	- Can integrate video conferencing with other tools.	- Sets industry benchmarks for virtual meetings.
	- Awareness of collaboration platforms	- Competent in using collaboration tools for teamwork.	- Proficient in optimizing workflow with collaboration.	- Innovates in digital collaboration and productivity.
	- Basic understanding of channels and messaging.	- Can create and manage collaborative workspaces.	- Can lead team collaboration and knowledge sharing.	- Defines new paradigms in digital teamwork.
	- Familiarity with common collaboration tools.	- Competent in using collaboration platforms.	- Proficient in managing collaborative projects.	- Pioneer in shaping collaborative workspaces.
	- Can create and share documents online.	- Can facilitate remote team collaboration.	- Can lead digital collaboration initiatives.	- Sets industry standards in online teamwork.
	- Familiar with webinar and online event platforms.	- Proficient in hosting and moderating online events.	- Expert in designing and promoting virtual events.	- Innovates in online event experiences and engagement.
	- Can attend webinars and virtual events as a participant.	- Can create and manage online event logistics.	- Can lead large-scale virtual events and conferences.	- Defines new paradigms in online event production.

Proficiency Levels/ Competencies	Foundation	Intermediate	Advanced	Highly Specialized
Presentation Skills	- Basic familiarity with presentation software (e.g., PowerPoint, Google Slides).	- Proficient in using presentation software for basic slideshows.	- Expert in advanced features and animation effects of presentation software.	- Pioneer in developing custom presentation software solutions.
	- Can create simple slides with text and images.	- Can design visually appealing slideshows with multimedia elements.	- Can create interactive presentations and templates.	- Innovates in presentation software development.
	- Understands the importance of a clear and logical structure in presentations.	- Proficient in organizing content for effective presentations.	- Expert in creating complex structures for large presentations.	- Sets industry standards for content structuring.
	- Can create a basic outline for a presentation.	- Can craft engaging storylines and narratives.	- Can develop content hierarchies and flowcharts.	- Defines new paradigms in presentation content structure.
	- Basic awareness of design principles (e.g., balance, contrast, alignment).	- Proficient in applying design principles to create visually appealing slides.	- Expert in advanced design techniques and visual storytelling.	- Pioneer in groundbreaking visual design approaches.
	- Can select appropriate fonts and colors.	- Can use graphics and icons effectively.	- Can design complex visuals and infographics.	- Sets industry benchmarks in presentation design.
	- Awareness of audience needs and engagement strategies.	- Competent in engaging the audience through storytelling and interactivity.	- Proficient in using audience response systems and interactive tools.	- Innovates in audience engagement techniques.
	- Can maintain eye contact and speak clearly.	- Can adapt presentations to different audience types.	- Can lead audience participation and Q&A sessions.	- Defines new paradigms in audience engagement.
	- Basic knowledge of presentation delivery techniques.	- Competent in delivering presentations confidently and persuasively.	- Expert in advanced delivery techniques, including virtual presentations.	- Pioneer in revolutionary presentation delivery methods.
	- Can control nerves and manage speaking pace.	- Can use body language effectively.	- Can adapt to virtual and hybrid presentation environments.	- Sets industry standards in presentation delivery.
	- Awareness of presentation technology options (e.g., remote control, virtual reality).	- Proficient in integrating technology to enhance presentations (e.g., live polls).	- Expert in leveraging advanced technology (e.g., AR/VR) for immersive presentations.	- Innovates in presentation technology integration.
	- Can use basic presentation tools (e.g., clicker).	- Can integrate multimedia and interactive elements seamlessly.	- Can create cutting-edge technology-driven presentations.	- Defines new paradigms in presentation tech integration.

Proficiency Levels/ Competencies	Foundation	Intermediate	Advanced	Highly Specialized
	- Basic understanding of data visualization principles.	- Competent in using charts and graphs effectively.	- Proficient in creating complex data visualizations for presentations.	- Pioneer in data storytelling through visualization.
	- Can present data in a simple chart format.	- Can interpret and communicate data trends.	- Can use data visualization tools to convey complex insights.	- Sets industry benchmarks in data-driven presentations.
Digital Professionalism	Understands basic email etiquette.	Proficient in professional email communication.	Expert in crafting persuasive and effective emails.	Pioneer in developing innovative email strategies.
	Can use digital communication tools (e.g., chat).	Competent in online meetings and virtual collaboration.	Proficient in leading virtual teams and communication.	Sets industry standards for remote collaboration.
	Aware of the importance of professional online presence.	Maintains an active and professional social media profile.	Expert in personal branding and thought leadership online.	Influential online thought leader and brand innovator.
	Understands the risks of unprofessional social media behavior.	Can effectively engage with professional networks on social media.	Can lead social media marketing and engagement strategies.	Defines new paradigms in online influence and branding.
	Basic knowledge of online networking platforms (e.g., LinkedIn).	Competent in building and maintaining an online professional network.	Proficient in strategic digital networking and relationship management.	Innovates in digital networking tools and strategies.
	Aware of online networking etiquette and best practices.	Can leverage digital networks for career advancement.	Can lead organizational digital networking initiatives.	Sets industry benchmarks in digital networking.
	Understands the importance of online reputation.	Proficient in monitoring and managing online reputation.	Expert in crisis management and reputation repair online.	Pioneer in online reputation management strategies.
	Basic knowledge of online review platforms.	Can effectively address negative feedback and reviews.	Can lead reputation management efforts at an organizational level.	Defines new paradigms in online reputation management.
	Awareness of digital ethics and privacy concerns.	Competent in adhering to ethical standards online.	Proficient in navigating complex ethical dilemmas in digital contexts.	Sets ethical standards and influences industry ethics.
	Understands data privacy regulations and practices.	Can develop and implement ethical guidelines for digital behavior.	Can lead organizational ethics and compliance initiatives.	Pioneer in digital ethics research and advocacy.
	Aware of basic digital etiquette and netiquette.	Proficient in demonstrating courteous and respectful online behavior.	Expert in navigating complex digital etiquette situations.	Pioneer in developing and defining digital etiquette standards.

Proficiency Levels/ Competencies	Foundation	Intermediate	Advanced	Highly Specialized
	Understands the importance of online civility and respect.	Can educate and advocate for digital etiquette in professional settings.	Can lead digital etiquette training programs and initiatives.	Sets industry benchmarks in digital civility.
Sharing Information and Content Using Digital Technologies	- Familiar with basic digital communication tools (e.g., email, messaging apps).	- Proficient in using a range of communication tools.	- Expert in advanced communication and collaboration tools.	- Pioneer in developing novel communication platforms.
	- Can send and receive emails and messages.	- Can effectively manage digital communication channels.	- Can lead digital communication strategy development.	- Sets industry standards for digital communication.
	- Awareness of major social media platforms.	- Competent in using social media for personal engagement.	- Proficient in social media marketing and engagement.	- Innovates in social media strategies and trends.
	- Basic knowledge of posting and sharing content.	- Can manage social media profiles and create content.	- Can lead social media campaigns and community building.	- Sets industry benchmarks in social media engagement.
	- Basic understanding of content creation tools.	- Proficient in creating and sharing digital content.	- Expert in content strategy, creation, and distribution.	- Pioneer in content innovation and distribution methods.
	- Can create simple text and image-based content.	- Can optimize content for different digital platforms.	- Can lead content marketing and distribution initiatives.	- Sets industry standards for digital content creation.
	- Aware of basic online collaboration tools (e.g., Google Docs, Zoom).	- Competent in using online collaboration tools for teamwork.	- Proficient in leading virtual teams and projects.	- Innovates in online collaboration solutions.
	- Can participate in online meetings and document sharing.	- Can coordinate collaborative projects using digital tools.	- Can lead remote teams effectively.	- Sets industry benchmarks for online collaboration.
	- Awareness of multimedia content sharing platforms.	- Proficient in sharing multimedia content on various platforms (YouTube, Instagram, TikTok, etc.).	- Expert in multimedia content strategy and monetization.	- Innovates and influences multimedia content trends.
	- Basic ability to upload and share multimedia content.	- Can analyze multimedia engagement metrics and trends.	- Can lead multimedia content marketing campaigns.	- Defines new paradigms in multimedia content sharing.
	- Awareness of collaboration tools and platforms (e.g., Google Docs).	- Competent in collaborating on content projects with others using digital tools.	- Proficient in managing content collaboration workflows.	- Pioneer in content collaboration tools and methodologies.

Proficiency Levels/ Competencies	Foundation	Intermediate	Advanced	Highly Specialized
	- Basic ability to share and collaborate on digital documents.	- Can coordinate and facilitate content collaboration among teams.	- Can lead cross-functional content collaboration projects.	- Sets industry standards in content collaboration.
	- Basic understanding of copyright and fair use principles.	- Competent in copyright compliance and attribution when sharing content.	- Proficient in intellectual property management and licensing.	- Innovates in intellectual property protection and licensing.
	- Can identify basic copyright issues in content.	- Can negotiate content usage rights and licenses.	- Can lead intellectual property strategy and compliance efforts.	- Sets industry benchmarks in IP management.
	- Awareness of basic data privacy principles.	- Proficient in data privacy regulations and compliance.	- Expert in global data privacy laws and standards.	- Pioneer in shaping data privacy legislation.
	- Understands the importance of user consent.	- Can design and implement data privacy policies.	- Can lead privacy impact assessments (PIAs).	- Sets privacy standards at an international level.
	- Familiar with common online security threats.	- Competent in implementing security best practices.	- Proficient in threat detection and incident response.	- Innovates in cybersecurity strategies and technologies.
	- Understands password security and basic encryption.	- Can conduct security audits and risk assessments.	- Can lead security incident response teams.	- Defines new paradigms in cybersecurity.
	- Aware of content sharing risks and privacy settings.	- Competent in managing content sharing settings.	- Proficient in securing shared content and data.	- Innovates in secure content sharing technologies.
Engaging in Citizenship through Digital Technologies	- Awareness of online platforms for civic participation.	- Proficient in engaging with online communities and forums.	- Expert in leveraging digital tools for grassroots movements.	- Influential leader in digital activism and civic engagement.
	- Can participate in online discussions and polls.	- Can organize and lead online advocacy campaigns.	- Can develop digital strategies for political campaigns.	- Sets the agenda for digital civic engagement globally.
	- Basic ability to find and evaluate online information.	- Competent in discerning credible sources from misinformation.	- Proficient in conducting comprehensive online research.	- Pioneer in developing algorithms for automated fact-checking.
	- Understands the concept of bias in online content.	- Can teach information literacy skills to others.	- Expert in analyzing and combating online disinformation.	- Sets industry benchmarks for information verification.
	- Awareness of digital tools for advocacy and activism.	- Proficient in using social media for advocacy and awareness.	- Expert in designing and executing digital advocacy campaigns.	- Innovates in digital strategies, shaping global activism.
	- Can share and support causes online.	- Can mobilize online communities for social change.	- Can lead large-scale digital activism movements.	- Influential figure in global digital advocacy efforts.

Proficiency Levels/ Competencies	Foundation	Intermediate	Advanced	Highly Specialized
	- Basic understanding of media types and their influence.	- Competent in critically analyzing media content.	- Proficient in media production and storytelling.	- Pioneer in creating transformative digital media experiences.
	- Can identify media bias and propaganda techniques.	- Can produce multimedia content for various platforms.	- Expert in media literacy education and advocacy.	- Sets industry standards for digital media literacy.
Managing Digital Identity	- Understanding of basic digital identity concepts.	- Proficient in digital identity terminology and principles.	- Expert in digital identity frameworks and standards.	- Pioneer in defining new paradigms in digital identity.
	- Awareness of the importance of digital identity security.	- Competent in user authentication and authorization.	- Proficient in implementing secure digital identity solutions.	- Sets industry standards for digital identity security.
	- Basic knowledge of username/password authentication.	- Proficient in multi-factor authentication methods.	- Expert in biometric authentication and single sign-on (SSO).	- Innovates in authentication technologies and methods.
	- Awareness of common authentication vulnerabilities.	- Competent in identity federation and OAuth protocols.	- Proficient in implementing adaptive authentication.	- Sets new benchmarks in user authentication security.
	- Familiar with basic identity and access management (IAM) concepts.	- Competent in designing IAM policies and roles.	- Proficient in implementing IAM solutions at scale.	- Pioneer in developing next-gen IAM strategies and systems.
	- Understands the importance of least privilege access.	- Proficient in managing IAM platforms (e.g., Azure AD, Okta).	- Expert in IAM automation and integration.	- Sets industry standards for IAM in complex ecosystems.
	- Basic understanding of identity verification methods.	- Competent in identity proofing and verification processes.	- Expert in identity verification technologies (e.g., KYC).	- Innovates in identity verification for emerging contexts.
	- Awareness of identity theft and fraud prevention.	- Proficient in regulatory compliance (e.g., GDPR, AML).	- Proficient in fraud detection and prevention.	- Sets new standards in identity verification and fraud prevention.
	- Awareness of privacy regulations (e.g., GDPR, CCPA).	- Proficient in implementing privacy policies and consent mechanisms.	- Expert in managing user data privacy and consent at scale.	- Pioneer in shaping global privacy and consent frameworks.

Proficiency Levels/ Competencies	Foundation	Intermediate	Advanced	Highly Specialized
	- Understands the principles of data minimization and user rights.	- Competent in privacy impact assessments (PIAs).	- Proficient in incident response for privacy breaches.	- Defines new paradigms in privacy and consent management.
	- Awareness of blockchain-based identity concepts.	- Proficient in decentralized identity protocols (e.g., DID).	- Expert in implementing decentralized identity solutions.	- Innovates in blockchain-based identity systems.
	- Understands the principles of self-sovereign identity (SSI).	- Competent in blockchain-based identity governance.	- Proficient in identity interoperability and trust frameworks.	- Sets industry benchmarks in decentralized identity adoption.
Virtual Meetings and Collaboration	Can join and participate in virtual meetings using basic platforms.	Proficient in multiple video conferencing tools, can troubleshoot common issues.	Expert in video conferencing, can configure advanced settings and integrate with other tools.	Pioneer in video conferencing, designs custom solutions and leads virtual event productions.
	Can connect to and use audio conferencing tools for basic communication.	Competent in managing audio conferencing settings, can set up conference calls and manage participants.	Proficient in advanced audio conferencing features, such as voice recognition and transcription.	Innovator in audio conferencing technology, creates novel communication solutions.
	Can share screens and basic content during virtual meetings.	Proficient in screen sharing, can annotate shared screens and manage multiple displays.	Expert in advanced screen sharing, can conduct interactive presentations and remote demos.	Pioneer in screen sharing innovation, develops groundbreaking collaboration tools.
	Basic understanding of virtual whiteboard tools for simple annotations.	Competent in utilizing virtual whiteboards for brainstorming and visual collaboration.	Proficient in advanced whiteboarding features, such as real-time collaboration and templates.	Innovator in virtual whiteboarding, creates unique visual collaboration experiences.
	Can use basic chat and messaging tools for team communication.	Proficient in team messaging apps, can create and manage group chats and channels.	Expert in team messaging, can integrate with other collaboration tools and automate workflows.	Innovator in team messaging, designs custom chatbots and communication solutions.

Proficiency Levels/ Competencies	Foundation	Intermediate	Advanced	Highly Specialized
	Familiar with basic file sharing platforms and can upload/download files.	Competent in advanced file sharing features, such as version control and access permissions.	Proficient in secure file sharing, can implement encryption and data loss prevention.	Pioneer in file sharing solutions, sets industry standards for secure data sharing.
	Can collaborate on documents using basic cloud-based office suites.	Proficient in document collaboration, can track changes, and manage document workflows.	Expert in advanced document collaboration, can create custom templates and automate document processes.	Innovator in document collaboration, develops new paradigms for digital document management.
	Basic knowledge of virtual team-building activities and icebreakers.	Competent in facilitating virtual team-building sessions and fostering team cohesion.	Proficient in designing and leading complex virtual team-building initiatives.	Pioneer in virtual team building, develops cutting-edge team-building methodologies.
	Can schedule basic virtual meetings and send invitations.	Proficient in scheduling meetings, can manage multiple calendars and automate reminders.	Expert in meeting scheduling, can coordinate large-scale virtual events with intricate schedules.	Pioneer in meeting scheduling, designs innovative scheduling solutions for complex organizations.
	Can create simple meeting agendas.	Competent in designing comprehensive meeting agendas that align with objectives.	Proficient in advanced agenda creation, can incorporate multimedia elements and interactivity.	Innovator in agenda creation, pioneers new approaches to engagement and outcome-driven meetings.
	Basic knowledge of facilitating virtual meetings.	Competent in facilitating productive virtual meetings and managing group dynamics.	Proficient in advanced facilitation techniques, such as conflict resolution and decision-making frameworks.	Pioneer in virtual meeting facilitation, develops unique methodologies for enhancing collaboration and creativity.

Competency Area: Digital Transacting

Proficiency Levels/ Competencies	Foundation	Intermediate	Advanced	Highly Specialized
Access of e-Government and Other Online Services	- Basic awareness of e-government and its importance.	- Proficient in understanding various e-government services.	- Expert in comprehending the role of e-government in governance.	- Pioneer in shaping e-government policies and strategies.
	- Basic knowledge of available government services online.	- Can navigate and access a wide range of e-government services.	- Can design and optimize e-government service delivery.	- Sets industry standards for e-government excellence.
	- Basic familiarity with navigating e-government websites.	- Proficient in navigating complex e-government websites.	- Expert in finding and using specific services efficiently.	- Innovates in user-friendly e-government interfaces.
	- Understands common online service categories (e.g., taxation, healthcare).	- Can complete transactions and access information online.	- Can lead e-government website usability enhancements.	- Defines new paradigms in e-government user experience.
	- Awareness of the importance of digital documentation.	- Proficient in handling and storing digital documents securely.	- Expert in managing and organizing digital records and documents.	- Pioneer in advanced digital records management solutions.
	- Can open and view common digital document formats (e.g., PDF).	- Can retrieve and share digital documents efficiently.	- Can lead electronic document management projects.	- Sets industry benchmarks in digital records management.
	- Basic understanding of data privacy and online security.	- Competent in practicing online security measures and data protection.	- Proficient in ensuring data privacy compliance in e-government services.	- Innovates in e-government data privacy and security strategies.
	- Aware of common online risks (e.g., phishing, identity theft).	- Can identify and respond to online security threats.	- Can lead e-government security audits and improvements.	- Defines new paradigms in e-government data security.
	- Familiarity with government communication channels (e.g., email).	- Proficient in communicating with government agencies online.	- Expert in using advanced communication tools for government interactions.	- Pioneer in revolutionizing digital government communication.
	- Can send and receive basic government-related emails.	- Can participate in online consultations and feedback processes.	- Can lead the implementation of advanced digital communication platforms.	- Sets industry standards for e-government communication.

	- Awareness of the importance of accessible government services.	- Proficient in using assistive technologies for online accessibility.	- Expert in designing and ensuring digital inclusivity in e-government services.	- Innovates in accessibility solutions for diverse user groups.
	- Understands basic principles of web accessibility (e.g., WCAG).	- Can identify and address accessibility issues in e-government websites.	- Can lead accessibility initiatives and compliance efforts.	- Defines new paradigms in e-government inclusivity.
Digital Financial Literacy	- Basic understanding of financial concepts.	- Proficient in fundamental financial principles.	- Expert in advanced financial strategies.	- Pioneer in shaping financial innovations.
	- Awareness of personal financial management.	- Competent in budgeting and financial planning.	- Proficient in investment and wealth management.	- Sets industry benchmarks in finance.
	- Awareness of online banking services.	- Proficient in online banking and transactions.	- Expert in managing complex online financial tasks.	- Innovates in online banking solutions.
	- Basic knowledge of online payment methods.	- Can handle online payments and transfers.	- Can lead digital banking transformation projects.	- Defines new paradigms in online banking.
	- Familiar with mobile banking and payment apps.	- Competent in using mobile banking apps for transactions.	- Proficient in mobile wallet integration and management.	- Innovates in mobile payment technologies.
	- Aware of mobile payment security practices.	- Can manage multiple digital payment accounts.	- Can lead mobile payment integration initiatives.	- Sets industry standards in mobile payments.
	- Awareness of online investment opportunities.	- Proficient in online stock trading and investments.	- Expert in portfolio diversification and risk management.	- Pioneer in online investment strategies.
	- Basic understanding of investment risks.	- Can analyze stock market trends and make informed decisions.	- Can lead investment and trading education programs.	- Sets industry benchmarks in online investments.
	- Awareness of cryptocurrencies and blockchain.	- Proficient in understanding cryptocurrency basics.	- Expert in blockchain technology and crypto trading.	- Innovates in blockchain applications.
	- Basic knowledge of cryptocurrency risks.	- Can handle cryptocurrency transactions.	- Can lead blockchain integration projects.	- Defines new paradigms in cryptocurrency and blockchain.
	- Familiar with various digital payment methods.	- Proficient in using digital payment systems.	- Expert in optimizing online payment processes.	- Pioneer in digital payment innovation.
	- Understanding of payment security practices.	- Can manage multiple digital payment accounts.	- Can lead digital payment integration projects.	- Sets industry benchmarks in digital payments.
	- Awareness of financial management apps and tools.	- Proficient in using personal finance apps and tools.	- Expert in customizing financial software and apps.	- Innovates in financial software development.

	- Basic knowledge of budgeting and financial tracking apps.	- Can create and manage comprehensive financial portfolios.	- Can lead financial software implementation initiatives.	- Sets industry standards in financial technology.
	- Awareness of basic taxation principles.	- Proficient in understanding tax laws and regulations.	- Expert in tax optimization and compliance.	- Pioneer in shaping tax and financial regulations.
	- Basic knowledge of financial compliance.	- Can handle personal tax filings and compliance.	- Can lead financial compliance initiatives.	- Defines new paradigms in financial regulation.
Online Shopping and E-commerce	- Basic understanding of e-commerce concepts.	- Proficient in navigating e-commerce websites.	- Expert in e-commerce trends and consumer behavior.	- Pioneer in shaping e-commerce industry strategies.
	- Awareness of online shopping practices.	- Can compare products and prices effectively.	- Can lead e-commerce market research initiatives.	- Sets industry standards for e-commerce excellence.
	- Can identify and search for products online.	- Competent in product research and comparison.	- Proficient in using advanced product research tools.	- Innovates in product discovery and recommendation.
	- Basic knowledge of reading product reviews.	- Can evaluate product reviews and ratings effectively.	- Can lead product curation and recommendation projects.	- Defines new paradigms in product selection.
	- Aware of online shopping safety and security practices.	- Competent in online shopping security and reviews.	- Proficient in optimizing online shopping experiences.	- Innovates in online shopping and customer experience.
	- Can identify reputable online stores and websites.	- Can identify and avoid online shopping scams.	- Can lead e-commerce user experience enhancement.	- Sets industry benchmarks in online shopping practices.
	- Aware of mobile shopping apps and their usage.	- Competent in using mobile shopping apps effectively.	- Proficient in mobile shopping optimization and apps.	- Innovates in mobile shopping technologies and trends.
	- Can complete purchases through mobile apps.	- Can customize mobile shopping experiences and preferences.	- Can lead mobile commerce and app development projects.	- Defines new paradigms in mobile shopping.
	- Understands the basic shopping cart and checkout process.	- Proficient in managing items in the shopping cart.	- Expert in cart optimization and checkout processes.	- Pioneer in checkout innovation and conversion rate.
	- Can complete a basic online purchase.	- Can optimize the checkout process for efficiency.	- Can lead e-commerce payment and conversion rate projects.	- Defines new paradigms in e-commerce checkout.
	- Familiar with common online payment methods (e.g., credit cards).	- Proficient in using various digital payment methods.	- Expert in optimizing online payment processes.	- Pioneer in digital payment innovation and solutions.

	- Understands basic payment security practices.	- Can manage multiple digital payment accounts securely.	- Can lead digital payment integration and security initiatives.	- Sets industry benchmarks in digital payments.
	- Aware of mobile shopping apps and their usage.	- Competent in using mobile shopping apps effectively.	- Proficient in mobile shopping optimization and apps.	- Innovates in mobile shopping technologies and trends.
	- Can complete purchases through mobile apps.	- Can customize mobile shopping experiences and preferences.	- Can lead mobile commerce and app development projects.	- Defines new paradigms in mobile shopping.
Mobile Money System	- Aware of mobile wallet apps and their purpose.	- Proficient in using mobile wallets for basic transactions.	- Expert in utilizing advanced features and functions of mobile wallets.	- Innovates and shapes the future of mobile wallet technology.
	- Understands basic transactions (e.g., sending/receiving money).	- Can manage multiple mobile wallet accounts.	- Can lead mobile wallet adoption and integration projects.	- Sets industry standards for mobile wallet usability.
	- Awareness of mobile money security best practices.	- Competent in securing mobile wallet accounts.	- Proficient in identifying and mitigating fraud risks.	- Pioneer in mobile money security innovation.
	- Understands common fraud schemes (e.g., phishing).	- Can set up two-factor authentication and PIN security.	- Can lead fraud detection and prevention initiatives.	- Defines new paradigms in mobile money security.
	- Basic knowledge of mobile money transactions.	- Proficient in conducting common mobile money transactions.	- Expert in handling complex transactions (e.g., international remittances).	- Innovates in mobile money transaction processes.
	- Can send/receive money within the same network.	- Can pay bills and make merchant payments.	- Can lead mobile money interoperability projects.	- Sets industry benchmarks in mobile money transactions.
	- Understanding of the role of mobile money agents.	- Competent in locating and using mobile money agents.	- Proficient in agent management and network expansion.	- Pioneer in agent network strategies and growth.
	- Aware of basic agent transaction processes.	- Can identify agent locations and services offered.	- Can lead agent training and network optimization.	- Sets industry standards for mobile money agent networks.
	- Awareness of mobile money regulations and compliance.	- Competent in adhering to regulatory requirements.	- Proficient in designing and implementing compliance programs.	- Innovates in mobile money regulatory frameworks.
	- Understands Know Your Customer (KYC) procedures.	- Can conduct internal audits for compliance.	- Can lead regulatory compliance initiatives.	- Defines new paradigms in mobile money regulation.

	- Basic understanding of customer support in mobile money.	- Proficient in resolving common customer issues.	- Expert in designing and managing customer support systems.	- Pioneer in customer support innovation and excellence.
	- Aware of dispute resolution processes.	- Can handle customer inquiries and complaints.	- Can lead customer support teams and training programs.	- Sets industry benchmarks in mobile money customer support.
	- Awareness of the importance of data analytics.	- Proficient in using basic mobile money analytics tools.	- Expert in advanced mobile money data analysis and reporting.	- Innovates in mobile money data analytics and insights.
	- Basic understanding of transaction data and reporting.	- Can generate standard mobile money reports.	- Can lead data-driven decision-making initiatives.	- Defines new paradigms in mobile money analytics.
	- Aware of mobile money product offerings.	- Competent in designing and launching new mobile money products.	- Proficient in optimizing existing product portfolios.	- Pioneer in mobile money product innovation and diversification.
	- Understanding of customer needs and market trends.	- Can conduct market research for product development.	- Can lead product development teams and strategies.	- Sets industry standards for mobile money product excellence.
Digital Payment Systems	- Awareness of basic digital payment methods.	- Proficient in using common digital payment methods (e.g., credit/debit cards, mobile wallets).	- Expert in utilizing a wide range of digital payment methods, including cryptocurrencies.	- Pioneer in developing new payment technologies and methods.
	- Understanding of basic payment security.	- Competent in basic payment security practices (e.g., secure connections, password protection).	- Proficient in advanced payment security practices and encryption techniques.	- Sets industry standards for payment security and fraud prevention.
	- Awareness of mobile payment apps.	- Proficient in using mobile payment apps (e.g., Apple Pay, Google Pay).	- Expert in mobile payment app usage, including loyalty programs and rewards.	- Innovates in mobile payment app development and integration.
	- Basic understanding of NFC technology.	- Competent in mobile payment security (e.g., biometrics, tokenization).	- Proficient in optimizing mobile payment experiences for customers and businesses.	- Defines new paradigms in mobile payment solutions.
	- Familiar with online payment gateways.	- Proficient in using online payment gateways for e-commerce transactions.	- Expert in configuring and customizing payment gateways for online businesses.	- Pioneer in developing custom payment gateways and integrations.
	- Basic understanding of payment processing.	- Competent in payment gateway security and fraud prevention.	- Proficient in leading payment gateway implementation projects for large-scale businesses.	- Sets industry benchmarks in online payment gateway technology.
	- Aware of P2P payment services (e.g., Venmo, PayPal).	- Competent in conducting P2P transactions securely.	- Proficient in optimizing P2P payment workflows for efficiency and security.	- Innovates in P2P payment solutions and blockchain-based systems.

	- Understanding of P2P payment apps.	- Can manage P2P payment accounts and transactions.	- Expert in leading P2P payment integration projects for businesses.	- Defines new paradigms in decentralized P2P payments.
	- Awareness of contactless payment technology.	- Proficient in using contactless payment methods (e.g., contactless cards, mobile apps).	- Expert in contactless payment security and technologies (e.g., QR codes, NFC).	- Pioneer in developing contactless payment innovations and standards.
	- Basic understanding of NFC payment systems.	- Competent in configuring and troubleshooting contactless payment systems.	- Proficient in designing and implementing contactless payment solutions for businesses.	- Sets industry benchmarks in contactless and NFC payment ecosystems.
	- Awareness of e-commerce payment processes.	- Proficient in integrating digital payment systems into e-commerce platforms.	- Expert in customizing payment flows, ensuring compliance, and optimizing checkout experiences.	- Innovates in e-commerce payment integrations, optimizing conversion rates and user experiences.
	- Understanding of PCI DSS compliance.	- Competent in e-commerce payment security and compliance.	- Proficient in leading e-commerce payment integration projects for enterprise-level businesses.	- Defines new paradigms in e-commerce payment technology and integration.
	- Awareness of cryptocurrencies like Bitcoin.	- Competent in making cryptocurrency transactions.	- Proficient in cryptocurrency wallet management and trading.	- Innovates in blockchain and cryptocurrency technology.
	- Basic understanding of blockchain technology.	- Can use cryptocurrency wallets securely.	- Can lead cryptocurrency adoption initiatives.	- Sets industry benchmarks for cryptocurrency security.
Electronic Forms and Applications	- Awareness of electronic forms and applications.	- Familiarity with common types of e-forms.	- Proficiency in various e-form formats and usage.	- Pioneer in e-form innovation and strategies.
	- Basic knowledge of online application processes.	- Competence in completing standard e-forms.	- Expertise in developing and customizing e-forms.	- Sets industry standards for e-form design.
	- Can fill out basic electronic forms (e.g., web forms).	- Proficient in completing various online application forms.	- Expert in developing and optimizing electronic forms.	- Pioneer in form automation and user experience.
	- Understands common application processes (e.g., job applications).	- Can customize forms for specific business needs.	- Can lead form digitization and automation projects.	- Sets industry standards in electronic form design.
	- Basic understanding of form customization.	- Can customize standard e-forms for specific use.	- Proficiency in developing custom e-forms.	- Pioneer in e-form development and automation.
	- Awareness of form fields and layouts.	- Competence in creating dynamic e-forms.	- Expertise in integrating e-forms with databases.	- Defines new standards in e-form automation.

	- Familiarity with basic e-form integration.	- Competence in integrating e-forms with systems.	- Proficiency in designing e-form workflow systems.	- Innovator in e-form integration strategies.
	- Awareness of basic workflow concepts.	- Ability to optimize e-form workflows.	- Can lead e-form integration and workflow projects.	- Sets industry benchmarks in e-form integration.
	- Awareness of e-form security considerations.	- Competence in ensuring e-form compliance.	- Expertise in securing sensitive e-form data.	- Pioneer in e-form security and compliance.
	- Basic understanding of data privacy.	- Proficiency in handling e-form data securely.	- Ability to lead e-form compliance initiatives.	- Sets new standards in e-form security practices.
Digital Contracts and Agreements	- Basic understanding of contract law concepts.	- Proficient in contract law and terminology.	- Expert in advanced contract law principles.	- Pioneer in shaping contract law practices.
	- Awareness of legal obligations and liabilities.	- Can identify common contractual issues.	- Can draft and review complex legal contracts.	- Sets industry standards in contract law.
	- Familiarity with digital contract formats.	- Proficient in creating and managing basic digital contracts.	- Expert in using contract management software.	- Innovates in digital contract design.
	- Understands the elements of a contract.	- Can customize standard contract templates.	- Can lead contract automation projects.	- Defines new paradigms in digital contracts.
	- Basic knowledge of contract negotiation.	- Competent in negotiating standard agreements.	- Proficient in complex contract negotiations.	- Pioneer in innovative negotiation techniques.
	- Understands negotiation tactics and strategies.	- Can resolve contract disputes effectively.	- Can lead negotiation teams and strategies.	- Sets industry benchmarks in negotiation.
	- Awareness of digital signature technologies.	- Proficient in using digital signature tools.	- Expert in advanced authentication methods.	- Innovates in digital identity verification.
	- Understands the legal validity of e-signatures.	- Can ensure document security and authentication.	- Can lead authentication system implementations.	- Defines new standards in digital authentication.
	- Familiarity with blockchain technology.	- Competent in understanding blockchain's role in contracts.	- Proficient in creating and managing smart contracts.	- Innovates in blockchain-based contracts.
	- Awareness of smart contract concepts.	- Can identify use cases for blockchain in contracts.	- Can lead blockchain and smart contract projects.	- Sets industry benchmarks in blockchain contracts.
	- Basic knowledge of contract management tools.	- Proficient in using contract management software.	- Expert in optimizing contract management systems.	- Innovates in contract management technology.
	- Understands the importance of record-keeping.	- Can customize contract management solutions.	- Can lead contract management system implementations.	- Sets industry standards in contract software.
	- Awareness of international contract law.	- Proficient in international contract regulations.	- Expert in navigating complex international agreements.	- Pioneer in international contract compliance.

	- Understands cross-border legal considerations.	- Can ensure compliance with global regulations.	- Can lead international contract negotiations.	- Sets industry benchmarks in global contract law.

Competency Area: Digital Content Creation

Proficiency Levels/ Competencies	Foundation	Intermediate	Advanced	Highly Specialized
Content Creation Tools	- Basic familiarity with graphic design software like Canva or Adobe Spark.	- Proficiency in using graphic design software (e.g., Adobe Photoshop, Illustrator).	- Advanced design skills, including vector graphics, typography, and image manipulation.	- Mastery of complex design techniques and innovative visual concepts.
	- Basic understanding of video editing software (e.g., iMovie, Windows Movie Maker).	- Proficiency in video editing tools (e.g., Adobe Premiere Pro, Final Cut Pro).	- Advanced video editing skills, including transitions, effects, and color grading.	- Expertise in cinematic editing, 3D modeling, and VR video production.
	- Basic writing skills with a focus on grammar and spelling.	- Proficient in crafting compelling copy and editing for clarity and style.	- Expertise in persuasive copywriting, content structuring, and storytelling.	- Renowned copywriter and editor, with a unique voice and storytelling prowess.
	- Basic understanding of audio editing and podcasting tools (e.g., Audacity).	- Proficient in creating multimedia content, including podcasts and interactive media.	- Advanced multimedia production skills, including animation and interactive experiences.	- Innovative multimedia creator, pushing boundaries with immersive and AR/VR content.
	- Basic knowledge of brand elements like logos, colors, and fonts.	- Competent in creating basic brand identities and style guides.	- Proficiency in brand strategy, comprehensive identity design, and brand storytelling.	- Leading brand strategist, shaping brand identities for global corporations.
	- Basic audio editing with software like Audacity or GarageBand.	- Proficient in audio editing, including noise reduction and audio enhancement.	- Advanced audio editing skills, such as mastering and sound design.	- Leading innovator in audio editing, revolutionizing the field with groundbreaking techniques.
	- Basic understanding of using website builders like WordPress or Wix.	- Competency in managing content through CMS platforms, including customization.	- Expert in CMS administration, including plugin development and SEO optimization.	- Thought leader in CMS technology, shaping the future of content management systems.
	- Awareness of basic website analytics (e.g., Google Analytics).	- Competent in analyzing content performance and making data-driven decisions.	- Proficient in advanced content analytics, including A/B testing and conversion optimization.	- Leading expert in content analytics, developing new methodologies and predictive models.

Proficiency Levels/ Competencies	Foundation	Intermediate	Advanced	Highly Specialized
	- Basic understanding of 3D modeling software like Blender or Tinkercad.	- Competency in 3D modeling and animation, including basic rigging and rendering.	- Advanced 3D modeling and animation skills, including complex character animation and VFX.	- Pioneer in 3D modeling and animation, pushing the boundaries of what's possible in the field.
	- Awareness of VR technology and basic VR content creation tools.	- Proficient in creating immersive VR experiences using tools like Unity3D.	- Expert in advanced VR development, including AI integration and haptic feedback.	- Visionary in VR technology, leading the industry with groundbreaking VR innovations.
	- Basic project management skills for content creation projects.	- Proficient in managing content projects, from planning to execution.	- Expert in content project management, including budgeting and cross-functional coordination.	- Visionary content project manager, setting new standards for content creation workflows.
	- Awareness of UX principles and basic wireframing tools.	- Competent in wireframing, prototyping, and conducting basic user testing.	- Proficiency in information architecture, usability testing, and user-centered design.	- Leading UX designer, transforming user experiences and driving product innovation.
Digital Content Curation	- Awareness of basic animation concepts.	- Proficient in 2D animation software (e.g., Adobe Animate).	- Expert in 2D and 3D animation, character rigging, and animation principles.	- Pioneer in cutting-edge animation techniques, creating industry-defining animations.
	- Basic understanding of storytelling fundamentals.	- Competent in scriptwriting for short videos and presentations.	- Proficient in writing scripts for various media formats (e.g., films, animations).	- Leading scriptwriter, renowned for storytelling prowess and creativity.
	- Familiarity with basic storyboarding techniques.	- Proficient in creating visual storyboards for multimedia projects.	- Expert in advanced storyboarding, including dynamic compositions and timing.	- Visionary storyboard artist, known for innovative storytelling visuals.
	- Basic knowledge of video editing software (e.g., Adobe Premiere).	- Competent in video editing, basic effects, and transitions.	- Proficient in advanced video editing, color correction, and audio post-production.	- Leading post-production expert, pushing the boundaries of multimedia editing.
	- Awareness of basic VFX concepts.	- Competent in creating simple visual effects using VFX software.	- Expert in advanced VFX techniques, compositing, and 3D integration.	- Pioneer in groundbreaking VFX, creating awe-inspiring effects for films and games.

Proficiency Levels/ Competencies	Foundation	Intermediate	Advanced	Highly Specialized
	Demonstrates basic knowledge of various digital content types (text, images, videos, etc.) and their importance.	Proficient in identifying and categorizing different digital content formats.	Expert in understanding the nuances of digital content, including emerging formats and trends.	Pioneer in predicting future digital content forms and their impact.
	Knows how to find and access digital content through basic online searches and simple tools.	Competent in using advanced search techniques and tools to source content efficiently.	Proficient in leveraging various sources, including APIs and content syndication, to curate content.	Innovator in developing custom content aggregation methods and data pipelines.
	Can assess the relevance and quality of digital content at a basic level.	Capable of conducting detailed content assessments, considering factors like credibility, authority, and accuracy.	Expert in conducting in-depth content evaluations, employing advanced criteria and methodologies.	Sets industry standards for content evaluation and quality assessment.
	Basic understanding of categorizing and tagging digital content.	Proficient in creating taxonomies, metadata schemas, and content hierarchies for effective organization.	Advanced content organization skills, including content mapping and content lifecycle management.	Develops novel content organization strategies that redefine industry practices.
	Aware of basic CMS platforms and their functionalities.	Competent in managing and customizing CMS platforms for content curation.	Expert in implementing and integrating advanced CMS systems and plugins for optimal content management.	Pioneer in developing custom CMS solutions tailored to unique content curation needs.
	Basic knowledge of copyright and licensing issues related to digital content.	Competent in understanding and adhering to copyright and licensing laws.	Proficient in negotiating licenses and permissions for content usage.	Leading authority in copyright, licensing, and intellectual property for digital content.
	Can perform basic content publishing on digital platforms and social media.	Proficient in content scheduling, distribution strategies, and audience engagement.	Expert in developing content publishing strategies for various platforms and channels.	Innovator in content publishing, defining new standards for content distribution and engagement.

Proficiency Levels/ Competencies	Foundation	Intermediate	Advanced	Highly Specialized
	Awareness of basic content analytics tools and metrics.	Competent in using analytics tools to track content performance and optimize strategies.	Proficient in data-driven decision-making for content curation, A/B testing, and content optimization.	Visionary in content analytics, developing advanced algorithms and predictive models for content success.
	Basic understanding of audience behavior and engagement principles.	Competent in audience segmentation, targeting, and personalized content strategies.	Proficient in building and leading community engagement initiatives.	Pioneer in audience engagement, shaping the future of online communities and user interactions.
	Aware of basic ethical considerations in content curation, such as avoiding plagiarism and misinformation.	Competent in adhering to ethical guidelines, disclosing conflicts of interest, and promoting transparency.	Expert in navigating complex ethical dilemmas related to content curation, setting ethical standards for the industry.	Leading authority in ethical content curation, influencing ethical frameworks and practices.
	Awareness of emerging technologies related to content curation, such as AI-driven curation and blockchain verification.	Keeps up with emerging technologies and experiments with their application in content curation.	Deep expertise in implementing and optimizing emerging tech for content curation at scale.	Pioneer in developing and shaping the future of content curation technologies and methodologies.
Multimedia Production	Understands basic multimedia components (e.g., text, images, audio, video).	Can create multimedia concepts for simple projects.	Proficient in designing complex multimedia projects.	Innovator in multimedia concept development, sets new trends.
	Basic understanding of storyboarding and scriptwriting concepts.	Competent in creating simple storyboards and scripts.	Proficient in developing detailed storyboards and scripts for complex projects.	Expert in narrative design, creates immersive story experiences.
	Familiarity with basic design principles and tools.	Competent in creating simple graphics and visual elements.	Proficient in advanced graphic design and integration.	Pioneer in graphic design, creates groundbreaking visual content.
	Can record basic audio and perform simple edits.	Proficient in recording and editing audio for multimedia projects.	Expert in audio production, sound design, and advanced editing techniques.	Trailblazer in audio production, revolutionizes sound experiences.

Proficiency Levels/ Competencies	Foundation	Intermediate	Advanced	Highly Specialized
	Basic video shooting and editing skills.	Competent in creating and editing videos for simple projects.	Proficient in advanced video production and editing, including effects and transitions.	Visionary in video production, sets new standards in film-making.
	Awareness of basic animation principles.	Competent in creating simple animations and motion graphics.	Proficient in complex animation and motion graphics creation.	Innovator in animation, develops cutting-edge techniques.
	Can combine basic multimedia elements into a presentation.	Competent in integrating multimedia components with interactivity.	Proficient in developing highly interactive multimedia experiences.	Pioneer in multimedia integration, creates immersive virtual environments.
	Familiarity with basic multimedia software (e.g., Photoshop, Premiere, Audacity).	Competent in using multimedia software for specific tasks.	Expert in a wide range of multimedia software, including 3D modeling and VR tools.	Innovator in multimedia software, contributes to tool development.
	Understands basic principles of user experience (UX) design.	Competent in designing user-friendly multimedia interfaces.	Proficient in optimizing multimedia for maximum audience engagement.	Pioneer in UX design for multimedia, creates seamless and immersive experiences.
	Aware of basic copyright and legal considerations in multimedia production.	Competent in ensuring copyright compliance and legal issues in multimedia projects.	Proficient in managing complex copyright issues and securing necessary permissions.	Expert in multimedia copyright and legal matters, sets industry standards.
	Awareness of emerging technologies in multimedia production.	Keeps up with emerging technologies and explores their potential applications.	Deep expertise in cutting-edge multimedia technologies like AR, VR, and AI integration.	Visionary in multimedia technology, shapes industry trends.
	Basic awareness of accessibility considerations.	Competent in designing multimedia with basic accessibility features.	Proficient in creating multimedia content that meets strict accessibility standards.	Leader in inclusive multimedia production, sets accessibility benchmarks.
Content Optimization	Understands basic content types and their purposes.	Proficient in creating content strategies for specific target audiences.	Expert in developing comprehensive content strategies aligned with organizational goals.	Pioneer in content strategy innovation, sets industry standards.
	Basic understanding of target audience demographics.	Conducts audience research, understands audience behavior, and preferences.	Proficient in advanced audience analysis, segmentation, and persona development.	Innovator in audience research, employs cutting-edge techniques for deep audience insights.

Proficiency Levels/ Competencies	Foundation	Intermediate	Advanced	Highly Specialized
	Basic knowledge of keyword research tools and concepts.	Proficient in conducting keyword research, identifying high-value keywords, and optimizing content.	Expert in advanced keyword analysis, including long-tail keywords and semantic search.	Leader in keyword research, develops proprietary keyword research methodologies.
	Can perform basic on-page SEO tasks, such as optimizing titles, meta descriptions, and headings.	Competent in optimizing on-page elements for search engines, including content structure and internal linking.	Proficient in advanced on-page SEO techniques, such as schema markup and rich snippets.	Innovator in on-page SEO, pioneers new strategies for enhanced search visibility.
	Awareness of basic off-page SEO principles and link building strategies.	Competent in implementing off-page SEO tactics, including guest posting and outreach.	Expert in advanced off-page SEO, with a focus on natural link acquisition and authority building.	Leader in off-page SEO, develops groundbreaking link-building methods.
	Basic understanding of improving content for user engagement.	Proficient in optimizing content for better user experience, including mobile responsiveness and page speed.	Expert in advanced content optimization for exceptional user experiences and conversion rate optimization (CRO).	Pioneer in content-driven UX innovation, transforms user interactions with content.
	Aware of the importance of personalized content.	Competent in implementing basic content personalization based on user data.	Proficient in advanced content personalization strategies using AI and machine learning.	Innovator in content personalization, creates dynamic and hyper-targeted content experiences.
	Limited knowledge of A/B testing and experimentation.	Competent in designing and conducting A/B tests to optimize content performance.	Expert in sophisticated content experimentation, including multivariate testing and statistical analysis.	Leader in content optimization through experimentation, pioneers new testing methodologies.
	Basic familiarity with content analytics tools like Google Analytics.	Proficient in setting up content tracking, measuring KPIs, and drawing insights.	Expert in advanced analytics, including predictive analytics and custom dashboard creation.	Pioneer in content analytics, develops proprietary measurement models.
	Basic understanding of content creation and publication workflows.	Competent in managing content throughout its lifecycle, including archiving and updating.	Proficient in optimizing content workflows, version control, and content repurposing.	Innovator in content lifecycle management, creates efficient and scalable content processes.

Competency Area: Online Safety and Security

Proficiency Levels/ Competencies	Foundation	Intermediate	Advanced	Highly Specialized
Cybersecurity Awareness:	Aware of common online threats (e.g., phishing, malware).	Recognizes advanced threats and attack vectors.	Identifies emerging and complex cyber threats.	Pioneers in threat intelligence, contributes to threat research.
	Uses strong passwords occasionally.	Regularly practices strong password management.	Implements multi-factor authentication and password managers.	Develops advanced password security solutions.
	Basic knowledge of safe web browsing practices.	Adheres to safe browsing habits and can spot suspicious sites.	Utilizes advanced techniques (e.g., VPNs, sandboxing) for browsing.	Innovates in secure browsing technologies.
	Aware of social engineering tactics but may fall for them.	Can detect and resist most social engineering attempts.	Highly resistant to social engineering attacks and educates others.	Develops new methods to counter social engineering.
	Updates software sporadically.	Regularly applies security updates and patches.	Proactively monitors for updates and ensures timely deployment.	Designs automated update management systems.
Online Privacy Protection:	Understands the basics of data collection by websites.	Knows how various online services collect and use data.	Proficient in tracking data usage across multiple platforms.	Develops advanced data tracking and analytics tools.
	Familiar with basic privacy settings in common apps and sites.	Customizes privacy settings on most online platforms.	Configures advanced privacy settings and access controls.	Innovates in privacy settings design and implementation.
	Aware of data encryption but may not use it regularly.	Utilizes encryption tools and secure communication methods.	Implements end-to-end encryption and secure file sharing.	Pioneers in encryption technology and protocols.
	Has basic knowledge of VPNs and anonymization techniques.	Uses VPNs and anonymization methods for enhanced privacy.	Can set up and manage secure, private online connections.	Develops advanced anonymity solutions and protocols.
	Not actively involved in privacy advocacy efforts.	Supports online privacy causes and raises awareness.	Leads privacy advocacy initiatives and educates others.	Influential figure in shaping online privacy policies globally.
Digital Well-being:	Basic awareness of screen time and its impact.	Monitors and manages screen time effectively.	Implements advanced strategies for screen time control.	Develops tools and methodologies for digital wellness.

Proficiency Levels/ Competencies	Foundation	Intermediate	Advanced	Highly Specialized
	Has notifications enabled without much control.	Customizes notifications for better focus and balance.	Utilizes advanced notification management techniques.	Innovates in notification systems for digital health.
	Limited awareness of the concept of mindful tech use.	Practices mindfulness in technology consumption.	Integrates mindfulness into daily tech usage.	Leads mindfulness tech initiatives and research.
	Rarely disconnects from digital devices.	Regularly takes digital detox breaks for well-being.	Implements advanced digital detox strategies.	Pioneers in digital detox methodologies and retreats.
	Has poor sleep habits due to digital device use.	Maintains better sleep hygiene practices.	Develops and follows advanced sleep optimization routines.	Innovates in sleep tech for better digital well-being.
Digital Citizenship:	Demonstrates basic online etiquette and respect.	Exhibits good online manners and promotes civility.	Advocates for and educates others on online etiquette.	Influential figure in shaping online norms and behaviors.
	Aware of cyberbullying but may not respond effectively.	Recognizes cyberbullying and acts against it.	Develops strategies to prevent and combat cyberbullying.	Pioneers in cyberbullying prevention and intervention.
	Limited digital literacy, may struggle with fake news.	Displays digital literacy, can spot misinformation.	Promotes digital literacy and critical thinking skills.	Innovates in digital literacy education and platforms.
	Not involved in online activism or advocacy efforts.	Supports online causes and participates in activism.	Leads and organizes online activism campaigns.	Influential in global online activism and advocacy.
	Limited understanding of ethical dilemmas in tech.	Grapples with ethical tech issues and seeks solutions.	Develops ethical frameworks and policies for tech use.	Sets industry standards for ethical tech practices.
Digital Emergency Response:	Limited understanding of digital emergencies and incidents.	Can recognize common digital incidents and respond appropriately.	Identifies and manages complex digital emergencies effectively.	Innovates in digital incident detection and response systems.
	Lacks knowledge of incident response procedures.	Understands basic incident response steps and protocols.	Proficient in incident response and can lead incident teams.	Develops advanced incident response frameworks and strategies.
	Unaware of digital disaster recovery planning.	Familiar with the concept of disaster recovery planning.	Can design and implement digital disaster recovery plans.	Pioneers in disaster recovery technology and processes.
	Lacks skills in mitigating digital threats.	Can mitigate common digital threats effectively.	Proficient in advanced threat mitigation and vulnerability management.	Innovates in threat mitigation and creates novel security solutions.
	Uncertain in crisis communication during digital incidents.	Can communicate effectively during common digital crises.	Expert in crisis communication, both internally and externally.	Leads crisis communication efforts in high-stakes situations.

Competency Area: Digital Problem Solving

Proficiency Levels/ Competencies	Foundation	Intermediate	Advanced	Highly Specialized
Digital Troubleshooting	- Identifies basic hardware components.	- Diagnoses and resolves common hardware issues (e.g., keyboard, mouse, monitor).	- Troubleshoots complex hardware problems (e.g., motherboard, CPU).	- Pioneers in hardware innovation and problem-solving.
	- Recognizes common software applications.	- Troubleshoots software-related errors and glitches in common applications.	- Analyzes and resolves complex software issues (e.g., driver conflicts, system crashes).	- Develops proprietary software solutions for troubleshooting.
	- Navigates basic OS interfaces (e.g., Windows, macOS).	- Troubleshoots and resolves OS-related issues (e.g., boot problems, driver installation).	- Optimizes and fine-tunes OS performance and stability.	- Designs custom operating systems and solves unprecedented OS challenges.
	- Identifies basic network components (e.g., router, modem).	- Resolves common network connectivity issues (e.g., Wi-Fi problems, IP configuration).	- Diagnoses and troubleshoots complex network problems (e.g., firewall issues, DNS configuration).	- Architects network infrastructures and resolves complex, large-scale network challenges.
	- Recognizes basic security threats (e.g., malware, phishing).	- Resolves common security issues (e.g., password resets, malware removal).	- Identifies and mitigates advanced security threats (e.g., zero-day vulnerabilities, DDoS attacks).	- Develops cutting-edge security solutions and advises on cybersecurity strategy.
	- Navigates mobile device interfaces (e.g., iOS, Android).	- Troubleshoots common mobile device problems (e.g., app crashes, connectivity issues).	- Diagnoses and resolves advanced mobile device issues (e.g., hardware failures, data recovery).	- Leads the development of groundbreaking mobile technologies and resolves unprecedented mobile device challenges.
	- Understands basic cloud services and virtualization concepts.	- Resolves common cloud service and virtualization issues (e.g., AWS, VMWare).	- Troubleshoots complex cloud and virtualization problems (e.g., scaling, resource optimization).	- Innovates in cloud and virtualization technologies, shaping the industry.
	- Recognizes IoT device categories (e.g., smart thermostats, cameras).	- Troubleshoots common IoT device connectivity and functionality issues.	- Diagnoses and resolves intricate IoT device integration and security challenges.	- Pioneers in IoT technology development and resolves unique IoT device issues.

Proficiency Levels/ Competencies	Foundation	Intermediate	Advanced	Highly Specialized
	- Understands basic data recovery and backup principles.	- Recovers data from common storage media and performs routine backups.	- Recovers data from complex storage systems and designs comprehensive backup strategies.	- Develops novel data recovery and backup technologies and strategies.
	- Recognizes basic programming and scripting languages.	- Troubleshoots simple code errors and script functionality issues.	- Diagnoses and resolves complex programming and scripting problems (e.g., debugging, performance optimization).	- Innovates in programming and scripting languages, contributing to the field.
	- Communicates technical information clearly to non-technical users.	- Provides effective user support, documenting solutions and guiding users through troubleshooting steps.	- Manages escalated support cases and communicates with technical teams and stakeholders.	- Leads support teams, sets support standards, and communicates complex technical information to executives and stakeholders.
	- Applies basic problem-solving techniques.	- Utilizes critical thinking to identify and analyze issues effectively.	- Applies advanced problem-solving methodologies, root cause analysis, and critical thinking to complex issues.	- Pioneers in problem-solving methodologies, developing new approaches to tackle unprecedented challenges.
	- Shows a willingness to learn and improve troubleshooting skills.	- Actively seeks out opportunities for skill development and stays updated on industry trends.	- Pursues advanced certifications and training to deepen expertise.	- Contributes to the advancement of troubleshooting knowledge through research, training, and mentorship.
Coding and Programming	Familiarity with basic syntax and concepts of one or more languages (e.g., Python, JavaScript, Java). Can write simple programs.	Proficient in at least one programming language. Can develop medium complexity projects.	Mastery of multiple languages. Can architect complex software systems.	Pioneer in programming languages. Develops new languages or contributes significantly to existing ones.
	Basic problem-solving skills, can write simple algorithms and solve small coding challenges.	Competent in algorithmic problem solving and data structures. Can tackle moderate complexity problems.	Expert problem solver, can handle advanced algorithms and optimization challenges.	Innovator in problem-solving, devises groundbreaking algorithms and strategies.

Proficiency Levels/ Competencies	Foundation	Intermediate	Advanced	Highly Specialized
	Basic understanding of object-oriented concepts (e.g., classes, objects, inheritance).	Proficient in designing and implementing object-oriented solutions. Can work with frameworks.	Expert in object-oriented design principles and patterns. Can architect complex, maintainable systems.	Pioneer in object-oriented programming, creates paradigm-shifting frameworks.
	Familiarity with basic data structures (e.g., arrays, lists).	Proficient in working with common data structures (e.g., linked lists, stacks, queues).	Expert in advanced data structures (e.g., trees, graphs, hash tables). Can optimize data access and manipulation.	Innovator in data structures, designs new structures for specific applications.
	Basic understanding of fundamental algorithms (e.g., sorting, searching).	Competent in implementing common algorithms efficiently.	Expert in advanced algorithms (e.g., dynamic programming, graph algorithms). Can solve complex computational problems.	Pioneer in algorithm design, creates novel algorithms with significant impact.
	Familiarity with basic development tools (e.g., text editors, version control).	Proficient in using integrated development environments (IDEs) and version control systems (e.g., Git).	Expert in build and automation tools (e.g., Jenkins, Docker). Can set up continuous integration pipelines.	Innovator in software development tools, creates custom tools and workflows for maximum efficiency.
	Basic debugging skills using print statements or basic debugging tools.	Proficient in using debugging and profiling tools (e.g., GDB, Visual Studio Debugger). Can identify and resolve complex issues.	Expert in performance optimization, can profile and fine-tune code for efficiency.	Pioneer in debugging and profiling, develops new debugging techniques and tools.
	Limited understanding of software architecture concepts.	Competent in designing modular and scalable software architecture. Can work with microservices and API design.	Expert in system architecture and distributed systems design. Can optimize system performance and scalability.	Innovator in software architecture, pioneers new architectural paradigms.
	Basic understanding of relational databases and SQL.	Proficient in database design, SQL queries, and basic database administration.	Expert in database optimization, NoSQL databases, and big data technologies. Can design complex database systems.	Pioneer in database technology, develops new database models or systems.

Proficiency Levels/ Competencies	Foundation	Intermediate	Advanced	Highly Specialized
	Basic knowledge of HTML and CSS.	Proficient in front-end web development (e.g., HTML, CSS, JavaScript, front-end frameworks like React or Angular).	Expert in full-stack web development, including back-end technologies (e.g., Node.js, Python, Ruby on Rails). Can build complex web applications.	Innovator in web development, creates groundbreaking web technologies or frameworks.
	Basic understanding of mobile app development concepts.	Proficient in mobile app development using platforms like Android or iOS. Can build functional apps.	Expert in cross-platform development (e.g., React Native, Flutter) or native development with advanced features.	Pioneer in mobile app development, creates influential mobile platforms or technologies.
	Limited awareness of DevOps concepts.	Competent in DevOps practices, can set up continuous integration/continuous deployment (CI/CD) pipelines.	Expert in infrastructure as code (IaC), containerization (e.g., Docker), and orchestration (e.g., Kubernetes).	Innovator in DevOps, pioneers new CI/CD methodologies and infrastructure automation.
	Basic knowledge of common security vulnerabilities.	Proficient in security best practices and secure coding. Can conduct security audits.	Expert in ethical hacking and penetration testing. Can design and implement secure systems.	Pioneer in cybersecurity, develops new security protocols or defenses.
	Limited awareness of cloud platforms (e.g., AWS, Azure, Google Cloud).	Competent in deploying applications to the cloud and using cloud services.	Expert in cloud architecture, cost optimization, and scaling strategies. Can design complex cloud-based systems.	Innovator in cloud computing, contributes to the development of cloud technologies.
	Basic understanding of AI concepts.	Proficient in machine learning and AI model development. Can build and deploy AI solutions.	Expert in advanced AI techniques (e.g., deep learning, natural language processing). Can develop AI frameworks.	Pioneer in AI research and development, makes groundbreaking contributions to the field.
	Limited awareness of software testing methodologies.	Competent in manual and automated testing, test planning, and test case design.	Expert in test automation frameworks, load testing, and quality assurance. Can lead testing efforts.	Innovator in software testing, pioneers new testing methodologies and tools.

Proficiency Levels/ Competencies	Foundation	Intermediate	Advanced	Highly Specialized
	Basic ability to review code for basic issues.	Proficient in conducting code reviews, collaborating with development teams.	Expert in code quality assessment, codebase maintenance, and fostering collaboration.	Leader in code review and collaboration practices, sets industry standards.
Cybersecurity Incident Response	Can recognize common cybersecurity incidents and anomalies.	Proficient in identifying and classifying incidents based on evidence and patterns.	Expert in analyzing complex incidents, determining their impact, and attributing them.	Pioneer in identifying novel threats and creating new classification methods.
	Understands basic incident prioritization principles. Can follow predefined procedures for triage.	Competent in prioritizing incidents based on severity, potential impact, and business relevance.	Proficient in dynamic incident triage, adapting priorities as new information emerges.	Innovator in incident prioritization, developing advanced automated triage systems.
	Knows basic containment strategies and can follow predefined playbooks.	Competent in deploying containment measures and tracking their effectiveness.	Expert in designing custom containment strategies, minimizing collateral damage.	Pioneer in developing cutting-edge containment techniques.
	Can collect basic evidence following standard procedures. Understands chain of custody principles.	Proficient in collecting and preserving digital evidence, maintaining the chain of custody.	Expert in advanced forensic techniques, ensuring legal admissibility of evidence.	Innovator in digital forensics, pushing the boundaries of evidence preservation.
	Aware of the importance of threat intelligence in incident response.	Competent in integrating threat intelligence feeds and sharing relevant information with peers.	Expert in threat intelligence analysis and proactive sharing to mitigate future incidents.	Visionary in threat intelligence innovation, shaping the future of threat sharing and analysis.
	Understands basic automation concepts in incident response.	Proficient in developing and using automation scripts for incident handling.	Expert in creating advanced automated workflows and orchestration systems.	Pioneer in AI-driven incident response automation, revolutionizing incident handling.
	Awareness of basic legal and compliance requirements related to incident response.	Competent in managing legal aspects, such as breach notification and compliance obligations.	Proficient in complex legal and compliance issues, such as cross-border data breaches.	Leading expert in cybersecurity law and global compliance frameworks.

Proficiency Levels/ Competencies	Foundation	Intermediate	Advanced	Highly Specialized
	Can follow predefined incident recovery plans. Understands the basics of system restoration.	Competent in orchestrating recovery efforts, including system patching and vulnerability mitigation.	Expert in developing resilient recovery strategies and ensuring system hardening.	Pioneer in designing self-healing systems and preemptive remediation techniques.
	Can report incidents using predefined templates and channels.	Proficient in clear and concise incident reporting, including technical and non-technical stakeholders.	Expert in developing incident communication strategies and executive-level reporting.	Leader in crisis communication, handling high-stress situations effectively.
	Basic understanding of post-incident analysis and lessons learned.	Competent in conducting comprehensive post-incident reviews and documenting findings.	Proficient in implementing improvements based on analysis, enhancing incident response.	Innovator in continuous improvement, setting benchmarks for the industry.
	Basic understanding of privacy laws and regulations.	Competent in privacy and legal aspects of incident response.	Expert in navigating complex privacy and legal issues during incidents.	Pioneer in developing privacy and legal frameworks for incident response.

Annex 2: Sustainable Models and Strategies to Crowd in Different Actors to Implement the NDSF

Rational for Sustainable models for implementing the NDSF

Sustainable models for implementing the National Digital Skills framework ensure long-term impact, resource optimization, stakeholder engagement, inclusivity, policy support, economic growth, and the cultivation of a lifelong learning culture. They provide a solid foundation for building a digitally skilled workforce and positioning a country at the forefront of the digital era.

- Long-term Impact: Sustainable models ensure that the framework's impact is long-lasting, addressing the country's ongoing digital skills needs and creating a workforce skilled in adapting to new technologies.
- Continuity and Adaptability: A sustainable model helps the framework stay current with evolving technology and educational needs, ensuring it continuously provides relevant digital skills.
- Resource Optimization: Sustainable models lead to efficient resource use, focusing on high-impact activities such as curriculum development, teacher training, and infrastructure, enhancing the framework's value and effectiveness.
- Stakeholder Engagement: Sustainable models foster collaboration among various stakeholders like government, educational institutions, and the private sector, enriching the framework with diverse insights and resources.
- Inclusivity and Equity: These models ensure equal access to digital skills training for all, particularly focusing on underserved communities, thereby promoting inclusivity and equity.
- Policy Alignment and Support: Sustainable models integrate the digital skills framework into broader national policies, enhancing government support and making it a key part of national development.
- Economic Growth and Competitiveness: By fostering a digitally skilled workforce, sustainable models contribute to economic growth and global competitiveness, attracting investment and driving innovation.
- Lifelong Learning Culture: Sustainable models encourage ongoing learning and skill development, crucial for adapting to the rapidly evolving digital world and sustaining economic growth and innovation.

Top of Form

Proposed Sustainable Models for implementing the NDSF

Implementing a sustainable model for a National Digital Skills framework involves designing a comprehensive strategy that addresses the long-term development and continuous adaptation of digital skills within a country. Here are some sustainable models to consider:

- Multi-stakeholder Collaboration: Foster collaboration among government entities, educational institutions, industry associations, non-profit organizations, and private sector companies. Establish platforms for regular dialogue, information sharing, and joint decision-making to ensure diverse perspectives and collective ownership.
- Policy Integration: Integrate digital skills development into broader national policies and strategies, such as economic development plans, education policies, or digital transformation agendas. This alignment ensures long-term commitment, resource allocation, and policy coherence.
- Curriculum Development and Standardization: Develop comprehensive and standardized digital skills curricula that cover a wide range of topics, from basic digital literacy to advanced technical skills. Ensure the curriculum reflects industry needs, emerging technologies, and evolving digital trends.
- Training and Capacity Building: Invest in teacher training and professional development programs to enhance the digital skills of educators. Equip them with the necessary pedagogical approaches, tools, and resources to deliver high-quality digital skills training.
- Flexible Learning Pathways: Provide flexible learning pathways that cater to different learner needs and preferences. Offer online courses, blended learning models, micro-credentials, and recognition of prior learning to ensure accessibility, flexibility, and lifelong learning opportunities.
- Public-Private Partnerships: Forge partnerships with the private sector to align digital skills training with industry needs and ensure the relevance of the framework. Collaborate on curriculum development, work-integrated learning opportunities, and mentorship programs.
- Inclusivity and Accessibility: Ensure that the National Digital Skills framework is inclusive and accessible to individuals from diverse backgrounds, including marginalized communities, women, rural populations, and individuals with disabilities. Provide targeted programs, scholarships, and support networks to foster inclusivity.
- Continuous Monitoring and Evaluation: Implement a robust monitoring and evaluation framework to assess the effectiveness and impact of the framework. Regularly collect data on skill development outcomes, employment rates, and learner feedback to inform improvements and ensure accountability.
- Sustainable Funding Mechanisms: Establish sustainable funding mechanisms to support the implementation and long-term sustainability of the framework. Explore a mix of public and private funding sources, including government budgets, industry contributions, grants, and public-private partnerships.
- International Collaboration and Knowledge Sharing: Collaborate with international organizations, governments, and stakeholders to share best practices, exchange knowledge, and leverage global expertise in implementing digital skills frameworks. Participate in international forums and initiatives for mutual learning and support.

Remember that a sustainable model for implementing a National Digital Skills framework should be adaptable, responsive to changing needs, and continuously evaluated and improved. Tailor these models to the specific context, resources, and goals of your country to create a framework that can effectively address digital skills gaps and foster a digitally skilled workforce.

Matrix for Sustainable Models for engaging stakeholders in the national digital skills framework

This matrix provides a range of sustainable models for engaging stakeholders in the national digital skills framework. Implementing a combination of these models based on the specific context and requirements of the framework can help foster collaboration, drive stakeholder involvement, and ensure the long-term success and sustainability of the digital skills initiative.

Sustainable Models	Description	Examples/Considerations
Multi-stakeholder Collaboration	Foster collaboration among various stakeholders, such as government, education institutions, industry, non-profits, and community organizations.	Establish platforms for regular dialogue, joint decision-making, resource sharing, and collective ownership.
Policy Integration	Integrate digital skills development into national policies, strategies, and frameworks.	Align the framework with existing economic development plans, education policies, or digital transformation agendas.
Curriculum Development	Develop comprehensive and standardized digital skills curricula.	Cover various digital skills areas, from basic to advanced, and ensure alignment with industry demands and emerging technologies.
Training and Capacity Building	Invest in teacher training and professional development programs to enhance their digital skills and pedagogical approaches.	Equip educators/trainers with the necessary tools and resources to deliver high-quality digital skills training.
Flexible Learning Pathways	Provide flexible learning options to accommodate diverse learner needs and preferences.	Offer online courses, blended learning models, micro-credentials, and recognition of prior learning to ensure accessibility and lifelong learning.
Public-Private Partnerships	Collaborate with the private sector to align digital skills training with industry needs.	Engage businesses in curriculum development, work-integrated learning, mentorship, and job placement programs.
Inclusivity and Accessibility	Ensure equal access to digital skills training for all individuals, including marginalized groups, women, and individuals with disabilities.	Offer targeted programs, scholarships, technology accessibility measures, and support networks to foster inclusivity and address barriers.
Monitoring and Evaluation	Implement a robust system to monitor and evaluate the effectiveness and impact of the framework.	Collect data on skill development outcomes, employment rates, learner feedback, and use the findings for continuous improvement and accountability.
Sustainable Funding Mechanisms	Establish funding mechanisms to support the implementation and long-term sustainability of the framework.	Explore government budgets, public-private partnerships, grants, and innovative financing models to secure funding for initiatives and resources.
International Collaboration	Collaborate with international organizations, governments, and stakeholders to share knowledge and best practices.	Participate in global forums, initiatives, and knowledge exchange platforms for mutual learning, support, and leveraging international expertise.

Potential partners and their roles in implementing a sustainable model for a National Digital Skills framework

This partnership matrix provides an overview of potential partners and their roles in implementing a sustainable model for a National Digital Skills framework. It's important to engage with a diverse range of partners to leverage their expertise, resources, and networks in creating a comprehensive and effective framework. Remember to tailor your partnerships based on your specific goals, local context, and available stakeholders.

Partner	Role in Sustainable Model
Government Agencies	Provide strategic direction, policy support, and funding for the framework. Establish regulatory frameworks and standards.
Educational Institutions	Develop and deliver digital skills curricula and training programs. Collaborate on teacher training and integration of digital skills in formal education.
Industry Associations	Identify current and future digital skill requirements. Contribute industry expertise, resources, and mentorship opportunities.
Non-profit Organizations	Support underserved communities' access to digital skills training. Offer outreach programs, scholarships, and resources for marginalized groups.
Private Sector Companies	Collaborate on curriculum design, work-integrated learning opportunities, and mentorship programs. Offer funding, expertise, and employment opportunities.
Research Institutions	Conduct research on emerging digital skills trends. Provide insights into future skills demands and technological advancements.
Training Providers	Deliver digital skills training programs and certifications. Offer specialized training in areas such as cybersecurity, data analysis, or programming.
Funding Organizations	Provide grants, financial support, and resources to sustain the implementation of the framework.
International Partners	Collaborate on knowledge exchange, best practices, and global partnerships for digital skills development.

Strategy matrix for engaging different stakeholders for implementing the national digital skills framework

This strategy matrix provides an overview of the objectives and strategies for engaging different stakeholders in implementing a National Digital Skills framework. Customize and adapt these strategies based on the specific goals, priorities, and available stakeholders in your context.

Stakeholders	Objectives	Strategies
Government agencies	• Provide policy direction and support for the framework. • Allocate funding and resources.	✓ Establish a dedicated government body or task force to oversee the framework's implementation. ✓ Develop policies that incentivize digital skills development. ✓ Allocate budget for training programs and infrastructure development.
Educational institutions	• Integrate digital skills into formal education systems. • Enhance educators' digital skills.	✓ Collaborate with institutions to embed digital skills training into curricula. ✓ Provide professional development programs for educators. ✓ Foster partnerships with schools, colleges, and universities for program delivery.
Industry associations	• Align digital skills training with industry needs. • Provide industry expertise and resources.	✓ Engage associations in curriculum development to ensure alignment with industry demands. ✓ Create work-integrated learning opportunities and industry mentorship programs. ✓ Foster dialogue and feedback channels between associations and the framework implementation team.
Non-profit organizations	• Support underserved communities' access to digital skills training. • Provide outreach programs.	✓ Collaborate with non-profit organizations to deliver targeted digital skills programs. Offer scholarships or financial assistance to individuals from marginalized groups. ✓ Leverage their networks for outreach and awareness campaigns.
Private sector companies	• Collaborate on curriculum development and delivery. • Provide funding and employment opportunities.	✓ Engage companies in curriculum design and work-integrated learning opportunities ✓ Establish partnerships for mentorship programs and job placement initiatives. ✓ Secure funding and resources from private sector entities.
Research institutions	• Conduct research on emerging digital skills trends. • Provide insights into future skill demands.	✓ Collaborate on research projects to identify emerging digital skills requirements. ✓ Leverage research findings to inform curriculum updates and program development. ✓ Establish knowledge-sharing platforms and partnerships.
Training providers	• Deliver digital skills training programs. • Provide specialized training in specific domains.	✓ Collaborate with training providers to deliver standardized digital skills programs. ✓ Certify training providers to ensure quality and consistency. ✓ Foster partnerships to offer specialized training in areas like cybersecurity or data analysis.

Funding organizations	• Provide financial support for framework implementation.	✓ Seek funding opportunities from governmental, philanthropic, and international organizations. ✓ Develop grant proposals aligned with the framework's goals and objectives. ✓ Establish partnerships for joint funding initiatives.
International partners	• Collaborate on knowledge exchange and best practices.	✓ Participate in international forums, conferences, and initiatives related to digital skills. ✓ Foster partnerships with international organizations for knowledge sharing and capacity building. ✓ Share experiences and learn from other countries' digital skills frameworks.

Annex 3: Operational Plan for NDSF

This operational plan for the NDSF outlines the specific actions and steps to be taken to implement the framework effectively. It provides a roadmap for achieving the goals and objectives of the framework.

Operational Areas for the NDSF

Operational areas for a National Digital Skills framework typically include the following:

- Goal Setting: Define clear and specific goals and objectives for the framework, considering the country's digital skills needs, economic priorities, and social development goals.
- Governance Structure: Establish a dedicated governance structure to oversee the implementation and coordination of the framework. This structure may include a task force, committee, or department responsible for decision-making, policy development, and resource allocation.
- Stakeholder Engagement: Engage and involve key stakeholders such as government agencies, educational institutions, industry associations, non-profit organizations, private sector companies, and community groups. Foster collaboration, seek input, and build partnerships to ensure collective ownership and participation.
- Curriculum Development: Develop comprehensive and standardized digital skills curricula that encompass a wide range of skill levels and domains. Collaborate with educational institutions, industry experts, and subject matter specialists to ensure relevance, alignment with industry needs, and future readiness.
- Teacher Training and Capacity Building: Provide training programs and professional development opportunities for educators to enhance their digital skills and pedagogical approaches. Equip them with the necessary tools, resources, and support to effectively deliver digital skills training.
- Partnership Development: Forge partnerships with the private sector, industry associations, non-profit organizations, research institutions, and international collaborators. Collaborate on curriculum design, work-integrated learning opportunities, mentorship programs, and resource sharing to leverage expertise, resources, and networks.
- Infrastructure Development: Ensure the availability of necessary infrastructure and resources to support digital skills training. This includes access to devices, internet connectivity, digital learning platforms, and physical learning spaces. Identify gaps and work towards addressing them in collaboration with relevant stakeholders.
- Training Program Delivery: Implement and deliver digital skills training programs using various modalities such as in-person classes, blended learning approaches, online platforms, and hands-on practical exercises. Monitor the quality and effectiveness of the training programs to ensure desired outcomes.
- Monitoring and Evaluation: Establish a robust monitoring and evaluation framework to track the progress, measure outcomes, and assess the impact of the framework. Collect data on skill development, employment rates, learner feedback, and success stories to inform decision-making and continuous improvement.
- Awareness and Outreach: Conduct awareness campaigns and outreach activities to promote the importance of digital skills, increase participation in training programs, and raise public awareness about the benefits of digital literacy and competence.
- Sustainability and Scaling: Develop strategies for long-term sustainability and scalability of the framework. Explore funding mechanisms, public-private partnerships, and collaborations to secure resources and support. Seek opportunities for replication, expansion, and integration into national development plans.

These operational areas provide a comprehensive framework for implementing the NDSF. Customize and adapt them based on the specific context, priorities, and resources available in your country.

Matrix for the governance structure of implementing the NDSF

Stakeholder	Institution/Persons	Role and Responsibilities
Government Authority	RISA, Miniyouth	• Provide strategic direction and policy guidance • Establish the framework's objectives and priorities • Coordinate efforts among stakeholders • Allocate resources and funding for implementation • Monitor progress and evaluate outcomes
Steering Committee	A high-level steering committee comprised of representatives from relevant government departments, industry bodies, academia, and other key stakeholders.	• Oversee the implementation of the framework • Set policies and guidelines for stakeholders • Make decisions on key strategic issues • Ensure alignment with national priorities • Coordinate working groups and other stakeholders
Working Groups	Working groups consisting of subject matter experts and representatives from different sectors relevant to digital skills development.	• Contribute to curriculum development • Identify skill gaps and define competency requirements • Develop assessment and certification processes • Design guidelines for training and capacity building • Monitor industry trends and emerging technologies
Industry Advisory Board	An advisory board comprising industry leaders, employers, and professional associations.	• Provide insights on current and future industry needs • Advise on industry-specific skills and competencies • Assist in aligning the framework with industry standards • Support industry engagement initiatives • Advocate for the framework's adoption in the private sector
Academic Institutions	Universities, colleges, TVET, RP and other training providers	• Align curricula with the framework's competency requirements • Develop and deliver digital skills training programs • Provide input on curriculum development and assessment processes • Collaborate with industry for practical training opportunities • Contribute to research on digital skills and education
Assessment and Certification Bodies	Workforce Development Authority (WDA) Rwanda Polytechnic (RP) Higher Education Institutions (HEIs): Universities and other higher education institutions. Sector Skills Councils Professional Associations Industry Training Centers: Rwanda Information Society Authority (RISA)	• Design and administer assessments aligned with the framework • Develop certification processes for digital skills qualifications • Ensure quality and consistency in assessments and certifications • Collaborate with working groups and academic institutions • Periodically review and update assessment standards

Funding Agencies		• Allocate financial resources for framework implementation • Provide grants or funding opportunities for training initiatives • Support research and evaluation activities • Ensure equitable access to funding across regions and sectors • Monitor the efficient utilization of funds
Research and Evaluation Bodies	National Institute of Statistics Rwanda (NISR)	• Conduct research on digital skills trends and needs • Evaluate the impact and effectiveness of the framework • Provide insights for continuous improvement • Collect and analyze data on skill development initiatives • Contribute to evidence-based policymaking

Matrix for stakeholder engagement for the NDSF

This matrix outlines key stakeholders in the NDSF ecosystem, their roles, and engagement activities that can foster their involvement in curriculum development and implementation.

Stakeholder	Role	Engagement Activities
Industry Associations • Private Sector Federation (PSF) • Rwanda Development Board (RDB) • Rwanda ICT Chamber • Rwanda Hotels and Restaurants Association (RHRA) • Rwanda Manufacturers Association (RMA) • Rwanda Agribusiness Association (RAB)	Represent the interests of specific industries or sectors.	• Consultation on the skills needs and priorities within their industry. • Validation of curriculum content and alignment with industry standards • Participation in curriculum development workshops or focus groups.
Employers (Public and private sector)	Provide job opportunities and contribute to skill requirements.	• Feedback on the skills gaps and requirements in their organizations. • Collaboration in the design of workplace-based learning components. • Input on the relevance and practicality of the curriculum in meeting industry needs.
• Professional Bodies • ICT Chamber • Rwanda Information and Communication Technology Association (RICTA) • Rwanda Women in Science and Engineering (WiSE) • ICT Teachers' Association of Rwanda (ICTAR)	Set standards and regulate professional practice.	• Review and endorsement of the curriculum's alignment with professional standards. • Collaboration on the development of specialized modules or units for professional qualifications. • Input on the assessment methods to ensure competency-based evaluation.
Training Providers • Digital Opportunity Trust (DOT Rwanda) • Andela Rwanda • Carnegie Mellon University Africa (CMU-Africa) • Rwanda Coding Academy • African Leadership University (ALU): • Rwanda ICT Chamber: • Rwanda Polytechnic (RP): • Rwanda TVET	Deliver education and training programs.	• Collaboration in curriculum development, ensuring alignment with their institutional goals. • Input on the practical implementation of the curriculum in training delivery. • Participation in the review and improvement of the curriculum based on learner outcomes and industry feedback.

Stakeholder	Role	Engagement Activities
Government Agencies	Develop policies and provide regulatory oversight.	• Consultation on the development of the NDSF and its related curricula. • Compliance with regulatory requirements and alignment with national policies. • Collaboration on the development of funding mechanisms and incentives for skills development.
Learners	Benefit from skill development opportunities.	• Engagement in needs assessment surveys or focus groups to gather their perspectives. • Feedback on the curriculum content, delivery methods, and relevance to their career aspirations. • Participation in pilot programs or validation exercises to ensure learner-centric design.
Community Organizations	Represent community interests and promote inclusive skill development.	• Collaboration in identifying specific skill needs and opportunities for marginalized or disadvantaged groups. • Input on the accessibility and inclusivity aspects of the curriculum. • Awareness campaigns and outreach efforts to promote skills development opportunities.

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Matrix for Curriculum development in reference to NDSF

This matrix provides a general framework for curriculum development aligned with the NDSF. However, the specifics of each step may vary depending on the context, industry, and qualification levels targeted by the curriculum.

Matrix for curriculum development aligned with the NDSF

Step	Description
Step 1: Identify Skills	Identify the specific skills and competencies targeted by the curriculum based on industry requirements and the NDSF.
Step 2: Determine Qualification Levels	Refer to the NDSF to identify the relevant qualification levels and descriptors associated with the identified skills.
Step 3: Define Learning Outcomes	Define clear and measurable learning outcomes for each module or unit in the curriculum, aligning them with the qualification levels and descriptors in the NDSF.
Step 4: Design Curriculum Structure	Develop the overall structure of the curriculum, organizing modules or units based on the identified skills and qualification levels from the NDSF.
Step 5: Select Teaching Methods and Resources	Choose appropriate teaching methods, techniques, and resources that align with the NDSF's guidance on pedagogy and assessment.
Step 6: Develop Learning Materials	Create or compile learning materials, ensuring that their content aligns with the qualification levels and descriptors from the NDSF.
Step 7: Sequence and Timeline	Arrange the modules or units in a logical sequence, considering the progression of skills and the qualification levels defined in the NDSF. Determine an appropriate timeline for the curriculum.
Step 8: Assessment Strategy	Develop a comprehensive assessment strategy that aligns with the NDSF's assessment guidelines. Design formative and summative assessments that measure the achievement of learning outcomes.
Step 9: Review and Improvement	Regularly review and evaluate the curriculum's effectiveness and relevance, considering feedback from stakeholders and learners. Continuously improve the curriculum to align with evolving industry needs and the NDSF.
Step 10: Stakeholder Collaboration	Engage with industry stakeholders, professional bodies, and training institutions to validate and enhance the curriculum's alignment with industry standards and the NDSF.

Matrix for teacher training and capacity building of the NDSF

This matrix outlines key components of teacher training and capacity building for the implementation of the NDSF.

Training Component	Description
Needs Assessment	Identify the digital skills needs and proficiency levels of teachers. Assess their existing competencies and areas for improvement.
Curriculum Alignment	Train teachers on the NDSF and how it aligns with the digital skills curriculum. Provide guidance on integrating the framework's competencies into lesson planning and instructional strategies.
Pedagogical Training	Provide professional development on effective teaching methodologies for digital skills. Train teachers on student-centered learning, project-based learning, and other active learning approaches suitable for digital skills education.
Technological Competence	Enhance teachers' technological competence by providing training on specific digital tools, software, and applications relevant to the NDSF. Develop their proficiency in using technology for instructional purposes and classroom management.
Assessment and Feedback	Train teachers on assessing and providing constructive feedback on students' digital skills. Focus on developing effective assessment strategies, formative feedback techniques, and methods for evaluating student progress in digital skill acquisition.
Industry Engagement	Facilitate opportunities for teachers to engage with industry professionals, experts, and practitioners. Arrange industry visits, guest lectures, or collaborations to keep teachers updated on current industry practices and trends.
Continuous Professional Development	Establish a system for ongoing professional development to ensure teachers stay updated with evolving digital technologies and pedagogical approaches. Provide access to workshops, webinars, online courses, and communities of practice for continuous learning and knowledge sharing.
Mentoring and Support	Assign experienced mentors or digital skills coordinators to support and guide teachers in implementing the NDSF. Offer mentoring, coaching, and regular feedback to enhance their effectiveness in teaching digital skills.
Collaboration and Networking	Encourage teachers to collaborate and share best practices with peers within and outside their institutions. Facilitate networking opportunities through conferences, teacher forums, and online communities to foster collaboration and learning from others.
Monitoring and Evaluation	Establish mechanisms to monitor and evaluate the effectiveness of teacher training and capacity building initiatives. Collect feedback from teachers, conduct classroom observations, and assess the impact of training on student learning outcomes. Use this information to refine and improve the training programs.

Matrix for partnership development for the NDSF

This matrix provides an overview of potential partnership activities with different stakeholders for the implementation of the NDSF in Rwanda.

Stakeholder	Potential Partnership Activities
Government Agencies	• Collaborate on policy development and implementation related to the NDSF. • Coordinate efforts to align skills development programs and initiatives with the NDSF • Share data and insights to inform skills planning and decision-making. • Provide funding and resources for NDSF implementation. • Establish mechanisms for regular communication and coordination among government entities.
Industry Associations	• Engage in sector-specific skills planning and analysis to align industry needs with the NDSF • Collaborate on curriculum development, ensuring industry relevance and standards. • Provide industry expertise, advisory support, and guidance on digital skills requirements. • Support internship and apprenticeship programs to bridge the skills gap. • Facilitate industry engagement in training and certification initiatives.
Academic Institutions	• Collaborate on curriculum development and alignment with the NDSF. • Establish partnerships for work-integrated learning opportunities, such as internships and industry projects. • Provide training facilities, resources, and expertise to support NDSF implementation. • Offer professional development programs for educators to enhance their digital skills teaching capabilities. • Conduct joint research and evaluation studies on the effectiveness of NDSF implementation.
Training Providers	• Collaborate on program design, delivery, and evaluation to meet the NDSF requirements • Offer training programs and certifications aligned with the NDSF. • Share best practices and resources to enhance training quality and effectiveness. • Provide access to training facilities and resources for NDSF initiatives. • Collaborate on monitoring and evaluation of training outcomes and impact.
Business and Entrepreneurship Support Organizations	• Provide support for entrepreneurship programs that align with the NDSF. • Offer mentorship, coaching, and incubation support for aspiring entrepreneurs in the digital skills domain. • Collaborate on innovation and technology-focused initiatives to foster entrepreneurship and job creation. • Facilitate access to funding opportunities for startups and scale-ups in the digital skills sector. • Promote collaboration between startups and industry partners for skills development and innovation.
International Organizations and Development Partners	• Provide technical assistance, expertise, and resources to support NDSF implementation. • Facilitate knowledge exchange and best practices from other countries or regions. • Support capacity building initiatives, including training programs and institutional strengthening. • Collaborate on research, evaluation, and impact assessment studies related to the NDSF. • Help mobilize funding and resources to support NDSF initiatives.

Matrix for infrastructure development in the context of implementing the NDSF

This matrix outlines key infrastructure components for the implementation of the NDSF in Rwanda. Collaboration with relevant government agencies, educational institutions, and industry partners is essential to ensure effective infrastructure development that supports digital skills training and education.

Infrastructure Component	Description
Broadband Connectivity	Expand and improve access to high-speed broadband internet across the country to facilitate online learning, digital skills training, and remote collaboration. Enhance infrastructure, such as fiber-optic networks and wireless connectivity, to ensure reliable and affordable internet connectivity.
Training Centers and Facilities	Establish dedicated training centers and facilities equipped with modern technology and resources to support digital skills training. These centers can serve as hubs for conducting training programs, workshops, and practical hands-on sessions for learners and educators.
E-Learning Platforms	Develop or enhance e-learning platforms and digital learning management systems to facilitate online education and training. These platforms should support interactive content delivery, assessment mechanisms, and learner tracking functionalities.
Digital Labs	Set up digital labs equipped with computers, software, and other digital tools to provide learners with hands-on experience in areas such as coding, programming, and digital design. These labs should be accessible to both students and the wider community.
Maker Spaces	Establish maker spaces or innovation hubs equipped with tools and equipment for prototyping and experimenting with digital technologies. These spaces encourage creativity, collaboration, and the development of innovative digital solutions.
Cloud Computing Infrastructure	Invest in cloud computing infrastructure to support digital skills training and provide access to cloud-based resources and tools for learners and educators. This infrastructure can enable the delivery of virtual labs, cloud-based software applications, and collaborative projects.
Mobile Learning Solutions	Develop mobile learning solutions, such as mobile applications or platforms, to deliver digital skills training and educational content. These solutions should be accessible through mobile devices to reach a wider audience, including those in remote areas.
Remote Learning Infrastructure	Develop infrastructure and tools to support remote learning, including video conferencing systems, virtual classrooms, and online collaboration platforms. Ensure accessibility and connectivity for learners and educators in remote areas.
Accessibility Infrastructure	Create an inclusive learning environment by implementing accessibility infrastructure, such as assistive technologies and devices, to accommodate learners with disabilities. Ensure digital resources and platforms are designed with accessibility standards in mind.

Program Rollout

To effectively deploy digital skills in Rwanda, a comprehensive approach encompassing various stages is essential. Each step builds on the previous one, ensuring a cohesive and sustainable implementation. Here's a detailed elaboration of the proposed steps:

Matrix for Awareness and Outreach in the context of the NDSF

This matrix table helps in planning and organizing effective awareness and outreach initiatives within the National Skills Development Framework. It ensures that key aspects, including target audience, objectives, messages, communication channels, activities, timeline, responsibilities, budget, and monitoring, are carefully considered to maximize the impact of the awareness and outreach efforts.

Aspect	Description
Target Audience	The specific groups or individuals that the awareness and outreach activities are aimed at.
Objectives	The goals and desired outcomes of the awareness and outreach initiatives, such as promoting the NDSF, increasing participation, or raising awareness of available skill development opportunities.
Key Messages	The core messages that need to be conveyed to the target audience to effectively communicate the purpose and benefits of the NDSF.
Communication Channels	The various channels and platforms that will be utilized to reach the target audience, such as social media, websites, newsletters, workshops, seminars, or television/radio advertisements.
Activities	Specific activities or initiatives that will be undertaken to create awareness and engage the target audience, such as organizing events, conducting webinars, publishing articles, or partnering with community organizations.
Timeline	The schedule or timeline for executing the awareness and outreach activities, indicating the start and end dates for each initiative.
Responsible Parties	The individuals, departments, or organizations responsible for planning, coordinating, and implementing the awareness and outreach initiatives.
Budget	The allocated budget or resources for the awareness and outreach activities, including any funding sources or sponsorships.
Monitoring and Evaluation	The methods and criteria for monitoring and evaluating the effectiveness and impact of the awareness and outreach initiatives.
Review and Adaptation Process	The process for periodically reviewing and adapting the awareness and outreach strategies based on feedback, emerging needs, or changing circumstances.

Matrix table for Sustainability and Scaling of the NDSF

This matrix table provides a framework to systematically address various aspects related to the sustainability and scaling of the National Skills Development Framework. It helps ensure that the NDSF is built on a strong foundation, engages relevant stakeholders, secures necessary resources, and incorporates continuous improvement strategies to meet the long-term skill development needs of the country.

Aspect	Description
Goals and Objectives	Clearly define the long-term goals and objectives for the sustainability and scaling of the NDSF
Key Stakeholders	Identify the key stakeholders involved in sustaining and scaling the NDSF, such as government, industry, and education institutions
Collaboration	Describe the strategies and mechanisms for collaboration and partnership with stakeholders to ensure sustainability and scaling
Funding and Resources	Outline the funding sources and resources required to sustain and scale the NDSF, including budget considerations
Policy and Governance	Establish a robust policy and governance framework to support the long-term sustainability and scaling of the NDSF
Monitoring and Evaluation	Define mechanisms for monitoring and evaluating the effectiveness and impact of the NDSF and its scaling efforts
Continuous Improvement	Describe the processes for continuously improving and adapting the NDSF to meet evolving skill needs and challenges
Scaling Strategies	Identify strategies for scaling the NDSF, such as expanding geographic coverage, increasing participation, or diversifying training programs
Training Capacity	Assess and address the training capacity and infrastructure needed to support the scaling of the NDSF
Technology Integration	Explore opportunities to leverage technology for scaling the NDSF, such as e-learning platforms or online resources
Public Awareness	Develop strategies for raising public awareness about the importance of the NDSF and its impact on skill development
Stakeholder Engagement	Describe approaches to engage and involve stakeholders in the sustainability and scaling efforts of the NDSF
Long-term Planning	Develop long-term plans and roadmaps for sustaining and scaling the NDSF, including phased implementation and milestones
Knowledge Transfer	Establish mechanisms for sharing knowledge, best practices, and lessons learned to support sustainability and scaling
Policy Advocacy	Engage in policy advocacy to promote supportive policies and regulations that facilitate the sustainability and scaling of the NDSF

Operational Matrix for NDSF

This operation plan matrix provides an overview of key operational areas, activities, responsible parties, timelines, and resources required for implementing the NDSF.

Operational Areas	Key Activities	KPIs	Responsible Parties	Timeline	Resources Required
1. Goal Setting	• Define/clarify clear goals and objectives for the National Digital Skills framework.	• Number of goals and objectives defined	Task Force/Committee	Month 1	Framework documentation, stakeholder input
2. Governance Structure	• Establish a dedicated governance structure	• governance structure established	Government agency/ Task Force/Committee	Month 1	Team members, leadership support
3. Stakeholder Engagement	• Identify and engage relevant stakeholders, including government agencies, educational institutions, industry associations, and non-profit organizations.	• Number of stakeholders engaged	Task Force/Committee	Ongoing	Communication channels, collaboration platforms
4. Partnership Development	• Foster partnerships with industry, nonprofits, and research institutions	• Number of partnerships developed	Task Force/Committee/Partnership coordinators	Ongoing	Partnership agreements, collaboration frameworks
5. Policy and Strategy Development	• Develop policies and strategies to support digital skills development and integration across sectors.	• Number of policies and strategies developed/reviewed	Government agency/ Task Force/Committee	Months 2-4	Policy experts, stakeholder input
6. Curriculum Development	• Develop comprehensive and standardized digital skills curricula that cover a range of skill levels and domains.	• Number of curricula developed	Educational institutions/Industry associations/Task Force	Months 3-6	Subject matter experts, curriculum development resources
7. Teacher Training and Capacity building	• Provide training programs and professional development for educators to enhance their digital skills and teaching methodologies.	• Number of educators trained	Task Force/Committee/Educational institutions	Ongoing	Training materials, professional development resources
8. Infrastructure Development	• Assess and address infrastructure needs to support digital skills training, including access to devices, internet connectivity, and learning platforms.	• Percentage of infrastructure needs addressed	Government agency/ Task Force/Committee	Ongoing	Funding, technology resources, connectivity
9. Program Delivery	• Design and deliver digital skills training programs through various modalities, such as in-person classes, online courses, or blended learning.	• Number of participants in training programs	Training providers/ Educational institutions/Task Force	Ongoing	Trainers, learning resources, learning platforms

Operational Areas	Key Activities	KPIs	Responsible Parties	Timeline	Resources Required
10. Certification and Recognition	• Establish a framework for certifying and recognizing digital skills attainment, aligned with industry standards and qualifications frameworks.	• Number of certifications awarded	Government agency/ Task Force/Committee	Months 6-12	Accreditation process, industry collabo
11. Industry Collaboration	• Foster partnerships with industry associations and companies to align digital skills training with industry needs and provide work-integrated learning opportunities.	• Number of industry partnerships formed	Task Force/Committee/Industry associations	Ongoing	Partnership agreements, collaboration frameworks
12. Inclusivity and Access	• Develop targeted programs to ensure equal access to digital skills training for marginalized communities, women, and individuals with disabilities.	• Percentage of participation from underrepresented groups	Task Force/Committee/Non-profit organizations	Ongoing	Funding, outreach initiatives, accessibility accommodations
13. Monitoring and Evaluation	• Establish a monitoring and evaluation framework to track the progress, measure outcomes, and assess the effectiveness of digital skills initiatives.	• Percentage of progress tracked	Government agency/ Task Force/Committee	Ongoing	Data collection tools, evaluation framework
14. Research and Innovation	• Promote research and innovation in digital skills development, including monitoring emerging technologies and trends in digital competencies.	• Number of research studies conducted	Research institutions/Task Force/ Committee	Ongoing	Research partnerships, knowledge-sharing platform
15. Funding and Sustainability	• Develop a funding strategy to secure resources for the implementation and sustainability of the framework, including exploring public-private partnerships and grants.	• Amount of funding secured	Communication team/Task Force/ Committee	Ongoing	Communication channels, marketing materials
16. Awareness and Outreach	• Conduct awareness campaigns and outreach initiatives to promote the importance of digital skills and encourage participation in training programs.	• Number of individuals reached through awareness campaigns	Communication team/Task Force/ Committee	Ongoing	Communication channels, marketing mate

Annex 4. Implementation Plan

Key Results / Outcome	Result Area	Definition	Assumptions	Data Sources	Means of Verification	Baseline	Y1	Y2	Y3	Y4	Y5
Increase access to basic digital skills	Proportion of youth and adults with basic skills (including out of school children aged 15 years old)	Basic digital skills are equivalent to Proficiency Level 2 of NDSF Framework	• Financial resources available to roll out DAP 2.0 • Availability of data from primary schools and private service providers • All basic digital skills programs for private digital skills providers are based on the NDSF, and assessments test this level of proficiency. • Adult literacy learning centres provide basic digital skills	• DAP 2.0 field reports • Private digital skills providers' reports • National Digital skills assessment	• List of DAP beneficiaries • List of Participants from private sector with level 2 proficiency	67,000 DAP 250,453 (NISR, 2022) 127,054 Adult literacy Learning centres learners	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
	Percentage of lower secondary school students in the terminal year of the cycle with basic digital skills	Basic digital skills are equivalent to Proficiency Level 2 in NDSF	• All basic digital skills programs for lower secondary-school students are based on the NDSF, and assessments test this level of proficiency. • The number base on total enrolment at lower secondary and excluding the graduates of online, blended, and rapid skills training programs provided by private digital skills providers • All lower secondary school curriculum	National Digital Skills assessment or Household survey	List of Students in the terminal year of the cycle with basic digital skills	521,631	533,629	545,627	557,625	569,623	581,621

Key Results / Outcome	Result Area	Definition	Assumptions	Data Sources	Means of Verification	Baseline	Y1	Y2	Y3	Y4	Y5
			will include basic digital skills programs. • Completion of these programs can be treated as an indicator of acquisition of basic digital skills. • Assuming that the number completing at the level grows proportionate to the population growth rate of 2.3% (NISR, 2022)								
	Number of lower secondary school graduates produced annually with basic digital skills	Basic digital skills are equivalent to Proficiency Level 2 in NDSF	• All basic digital skills programs for lower secondary-school students are based on the NDSF and assessments test this level of proficiency. • All lower secondary school curriculum will include basic digital skills programs. • Completion of these programs can be treated as an indicator of acquisition of basic digital skills. • Graduates of online, blended, and rapid skills training programs provided	National Digital Skills assessment or Household survey	List of lower secondary school graduates produced annually with basic digital skills	121, 337 (NISR, 2022)	124,128	126,919	129,710	132,501	135,292

Key Results / Outcome	Result Area	Definition	Assumptions	Data Sources	Means of Verification	Baseline	Y1	Y2	Y3	Y4	Y5
			by private digital skills providers may be included so long as their program content, duration, and assessments tests are standardized. • Assuming that the number completing at the level grows proportionate to the population growth rate of2.3% (NISR, 2022)								
Increased access to intermediate digital skills	Percentage of upper secondary school students in the terminal year of the cycle with intermediate digital skills	Intermediate digital skills are equivalent to Proficiency Level 3 in NDSF	•All intermediate digital skills programs for upper secondary-school students are based on the NDSF and assessments test this level of proficiency. •Upper-secondary school curriculum will include intermediate digital skills programs. • The completion of these programs could be treated as an indicator of acquisition of intermediate digital skills • The graduates of online, blended, and rapid skills training programs	MINEDUC National skills assessment or HH survey (sample based)	List of upper secondary student in the terminal year of the cycle	171, 994 (NISR, 2022)	175,950	179,906	183,862	187,818	191,774

Key Results / Outcome	Result Area	Definition	Assumptions	Data Sources	Means of Verification	Baseline	Y1	Y2	Y3	Y4	Y5
			provided by private digital skills providers may be included so long as their program content, duration, and assessments tests are standardized. • Assuming that the number completing at the level grows proportionate to the population growth rate 2.3% (NISR, 2022)								
	Number of upper secondary school graduates produced annually with intermediate digital skills	Intermediate digital skills are equivalent to Proficiency Level 3 in NDSF	• All intermediate digital skills programs for upper secondary-school and TVET students are based on the NDSF, and assessments test this Level of proficiency. • The completion of these programs could be treated as an indicator of acquisition of intermediate digital skills. • Graduates of online, blended, and rapid skills training programs provided by private digital skills	MINEDUC National skills assessment or HH survey (sample based)	List of upper secondary student including • General Upper • TTCs (Y3)	122, 221	125,033	127,844	130,688	133,499	136,310

Key Results / Outcome	Result Area	Definition	Assumptions	Data Sources	Means of Verification	Baseline	Y1	Y2	Y3	Y4	Y5
			providers may be included so long as their program content, duration, and assessments tests are standardized. • Assuming that the number completing at the level grows proportionate to the population growth rate 2.3% (NISR, 2022)								
Increased access to advanced digital skills	Percentage TVET and polytechnic graduates with advanced digital skills	Advanced digital skills are equivalent to Proficiency Level 5 in NDSF	• All advanced digital skills programs for upper secondary-school and TVET students are based on the NDSF level 5, and assessments test this level of proficiency. • The completion of these programs could be treated as an indicator of acquisition of intermediate digital skills. • Graduates of online, blended, and rapid skills training programs provided by private digital skills providers may be included so long as their program	MINEDUC National skills assessment or HH survey (sample based)	List of polytechnics and TVET graduate with skills in advanced digital skills	41, 260	42,260	43,260	44,260	45,260	46,260

Key Results / Outcome	Result Area	Definition	Assumptions	Data Sources	Means of Verification	Baseline	Y1	Y2	Y3	Y4	Y5
			content, duration, and assessments tests are standardized. • Assuming that the number completing at the level grows proportionate to the population growth rate 2.3% (NISR, 2022)								
	Percentage of university undergraduate students in the terminal year of the cycle with advanced digital skills	Advanced digital skills are equivalent to Level 5 in NDSF	• The indicator will be limited to graduates of undergraduate level programs in engineering, computer science, mathematics and physics. • All advanced digital skills programs for university students are based on the NDSF, and assessments test this level or proficiency. • The completion of these programs could be treated as an indicator of acquisition of advanced digital skills • The graduates of online, blended, and rapid skills training programs provided by private	National skills assessment or HH survey (sample based)	75,276	50%	60%	70%	80%	90%	100%

Key Results / Outcome	Result Area	Definition	Assumptions	Data Sources	Means of Verification	Baseline	Y1	Y2	Y3	Y4	Y5
			digital skills providers may be included so long as their program content, duration, and assessments tests are standardized. • Assuming that the number completing at the level grows proportionate to the population growth rate 2.3% (NISR, 2022)								
	Number of university undergraduates produced annually with advanced digital skills	Advanced digital skills are equivalent to Level 5 in NDSF	• The indicator will be limited to graduates of undergraduate level programs that may include engineering, computer science, mathematics, physics and general education. • The graduates of online, blended, and rapid skills training programs provided by private digital skills providers may be included so long as their program content, duration, and assessments tests are standardized.	Universities MINEDUC National skills assessment or HH survey (sample based)	List of undergraduate produced annually with advanced digital skills	41,983	42,983	43,983	44,983	45,983	46,983

Key Results / Outcome	Result Area	Definition	Assumptions	Data Sources	Means of Verification	Baseline	Y1	Y2	Y3	Y4	Y5
			• Assuming that the number completing at the level grows proportionate to the population growth rate 2.3% (NISR, 2022)								
Number of University undergraduates produced annually with advanced digital skills	Percentage of university postgraduate students in the terminal year of the cycle with highly specialized digital skills	Highly specialized digital skills are equivalent to Level 7 in NDSF	• The indicator will be limited to graduates of postgraduate level programs in engineering, computer science, mathematics and physics. • All highly specialized digital skills programs for students are based on the NDSF, and assessments test this level of proficiency. • The completion of these programs could be treated as an indicator of acquisition of highly advanced digital skills. • The baseline target is based on postgraduate certificate, postgraduate diploma, masters and PhD students graduating in the	Universities MINEDUC National skills assessment or HH survey (sample based)	2857	2923	2989	3055	3121	3187	3253

Key Results / Outcome	Result Area	Definition	Assumptions	Data Sources	Means of Verification	Baseline	Y1	Y2	Y3	Y4	Y5
			year 2017/2018 (MINEDUC, 2019)								
	Number of university postgraduates produced annually with highly specialized digital skills	Highly specialized digital skills are equivalent to Level 7 in NDSF	• The indicator will be limited to students in the terminal year of postgraduate level university programs in engineering, computer science, mathematics and physics. • The baseline, interim target and final target assumes 50%, 75% and 100% of those enrolled in the programs will complete (or have skills) in years 2017, 2021, and 2030.	Universities MINEDUC	2857	2923	2989	3055	3121	3187	3253