

REVIEW OF THE EXISTING INFORMATION  
COMMUNICATION TECHNOLOGIES [ICT]  
IN CO-OPERATIVES IN AFRICA FOR THE PURPOSE OF  
ESTABLISHING A FLEXIBLE, USER-FRIENDLY  
INTEGRATED MANAGEMENT INFORMATION  
SYSTEM.



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**Editorial**

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List Of Accronyms

- ABSA:** Activity-based SMS alert
- ACCOSCA:** African Confederation of Cooperative Savings and Credit Associations
- BCEAO:** Central Bank of West African States
- CAK:** Cooperative Alliance of Kenya
- CFN:** Cooperative Federation of Nigeria
- CODAS:** Cooperative Data Analysis System
- COTGO:** Co-operative on-the-go
- CRAC:** Cooperative Record Automation Campaign
- CRIMS:** Cooperative Resources Information Management Solution
- DOTGO:** data-on-the-go
- EAC:** East Africa Community
- EPP:** Expected Peak Performance
- FDC:** Federal Department of Cooperatives
- GDP:** Gross Domestic Product
- HDI:** Human Development Index
- ICA:** International Cooperative Alliance
- ICT:** Information and Communication Technology
- MDG:** Millennium Development Goals
- SACCOs:** Savings and Credit Cooperative Organizations
- NACOs:** National Cooperative Organizations
- OECD:** Organization of Economic and Cooperative Development
- OHADA:** Organization for the Harmonization of Business Law in Africa
- PPP:** Purchasing Power Parity
- RCA:** Rwandan Cooperative Agency
- ROECSA:** Regional Office of East, Central and Southern Africa
- ROWA:** Regional Office of West Africa
- SANACO:** South Africa National Cooperatives
- SMN:** Social Media Networking
- SRO:** Self-Regulatory Organization
- TFC:** Tanzania Federation of Cooperatives
- ZINAHCO:** Zimbabwe National Housing Cooperatives

## Executive Summary

This body of work examines the patterns of ICT adoption in cooperative practice in Africa; focusing on the nature of ICT (simple or complex), the hardware (web-based (mobile) or client-server). The research work also examines among others, the knowledge-base of cooperative members, relative to ICT and the willingness to pay for ICT, which are all contributory to the degree of ICT adoption by cooperatives in Africa.

In the course of the study, two modes of ICT which operates concurrently in the cooperative circuit in Africa came to fore; these are Mainstream technologies (such as computers), and the portable hand-held devices (such as smart phones, tablets etc.).

The concurrent modes are germane to the realization of the six objectives of Alliance Africa linked to cooperative data and data automation. For data automation to gain grounds, ICT uptake must become second nature among members. It is fitting, then, that a review of existing Information Communication Technology, otherwise known as ICT in cooperative practice in Africa, with a view to establishing a user-friendly, integrated platform for cooperativism in the continent becomes pertinent, now, in view of state of extant cooperative data relative to quantity and quality.

While Information Communication Technology is an enabler for compression of time and space; summed up in cost-savings and efficiency; it brings about exchange of information in faster and easier way. Ultimately, ICT reduces the distance and enlivens the use of cooperative for social and economic development in a liberalized economic environment. Ultimately, the dispassionate consistency of ICT is essential for entrenching service standard, transparency and accountability.

On the flip side, lack of data is detrimental to cooperative growth; It makes Co-operative development difficult. The 'quantilitative' degree of data available has correlation for measurement and management. The foregoing pre-supposes that the quality and quantity of available data; processed into information are convertible to developmental growth. This underpins the urgency of an appropriate cooperative ICT platform.

Currently, across the continent, there are two broad categories of data in cooperative movement; namely: 'Captured' and 'un-captured data'. The sub-set of captured data include: automated data and unautomated-hardcopy data (contained in ledgers and other printed matter). Yet, there are still a lot more of data that are still not being captured. These have negative implication for measurement and management because these sets of uncaptured information are critical for lobbying and advocacy purposes for Co-operative movements. Ordinarily, if they were captured, such data would provide guidance and information to co-operative ministries, donors and development partners seeking to support co-operative movements in their countries.

The infusion of Information Technology in cooperative data processing and data management will, no doubt, fast-track convergence of cooperative management practice to cooperative business growth in tandem with the visions of stakeholders. As such, the cooperative movement should not by omission, or commission be left out in the adoption of ICT in cooperative practice; the potential is such that if driven by fair data representation and transparent management, the ripple effect will go a long way to benefit all stakeholders, cooperative societies, cooperative corporations and cooperative movements alike.

For now, the cooperative movement in Africa is in transitional stage relative to Information Communication Technology (ICT) adoption. Manual, and electronic record keeping, which is a sub-set of ICT functionality, co-exist. The latter has the unique advantage of fitting very large amount of data into unobtrusive portable digital space.

The core purpose of research study aimed at understanding how African co-operatives utilize ICT in their internal operations. It klieglight the extant ICT platform in Africa. It also sought to identify barriers to uptake of technologies by co-operatives across Africa with a view to providing recommendations to improve on the Co-operative Data Analysis System (CODAS) and increase the band of cooperative connectedness through a shared ICT Platform.

In arriving at the Method of data gathering and analysis, first, sample sets were identified using stratified sampling methods across 10 countries In Africa. These comprise 2 countries each, drawn from the 5 regions making up Africa. Although In one of the regions; North Africa, Morocco and Egypt were selected, responses were not received, timely. So, eight countries made up the study group.

South Africa and Zimbabwe were selected from Southern Africa. DR Congo and Rwanda were drawn from Central Africa.

Kenya and Tanzania were selected from East Africa, while Nigeria and Niger emerged from West Africa.

Afterwards, relying on technology to compress time and space of administration, online survey was administered via Virtual Reporting System (VRS); a proprietary software for conducting cost-friendly survey at Africa Prudential Plc. Finally, visiting enumerators went in and completed field-work in each of the eight countries.

Participants included 510 cooperative stakeholders.

Five (5) strata of the cooperative structure in Africa were evaluated. These include: Primary cooperatives, Union/Secondary, State/Provincial/Regional Federations, National Federations; and Government departments across eight countries, respectively. The trends of ICT utilization vary across the regions and Cooperative tiers. 34.77% is the highest and 13.90 being the lowest utilization rates found in the primary tier. 46.15% is the highest and 6.88 is the lowest utilization rates found in the Secondary tier. At the State/regional Federation, the highest utilization rate is 70.73% while 29.27is the lowest. 13.16% cooperatives in the primary tier practice data automation via ICT. 57.89% manual data/record keeping persist at the primary tier. 21.93% practice hybrid (manual and selective data automation). However, there is the collective will to bridge the gap in order to raise the standard of cooperative venture in Africa. Majority of the sample-group expressed willingness to make financial commitment towards having appropriate ICT Platform. The Aggregated agreement ranks at 51.75%, 60.87%, 44.44% and 83.33% at primary, union/secondary, State/Regional Federation and National Federation tiers, respectively. This is a paradigm shift that should be supported and cultivated to fruition.

Further findings show that:

- Manual operation is rife in cooperative administration across the study area. The trend speaks to the fact that these cooperatives are in a transitory mode; from predominantly manual mode towards ICT and automation.
- Whereas Information Management Application are better tuned to serve MIS- Management Information System role, there is prevalent use of Accounting Applications which lacks the depth and flexibility to provide solution-as-service to manage members data and records.
- ICT uptake is low across the African region. It is safe to say that the degree of existing ICT lacks the robustness and flexibility required to manage a dynamic sector if it truly desires to meet the challenges of emerging uniqueness in members' inclusive and exclusive needs. A robust system takes service delivery to members; beyond 'plain vanilla' which exclusive

accounting application offers.

- Cooperative leverage on ICT across the coverage area is relatively low when compared with some other sectors where ICT-use is higher. Manifest contents gleaned from respondents across four regions of Africa show primary cooperatives from the Eastern African region to be higher, at 34.77%, in the use of elemental sub-sets of ICT. The computation is based on the number of active emails, websites and smart/android phones. How much of information Communication Technology channels used in data collection from members equally counted. Data collection channel indicated by respondents include phone calls, SMS, and e-mail. Across the primary Tier too, they use this same mediated channel to share-out (disseminate) information, thereby reducing the band of face-to-face communication which would have delayed administrative and other cooperative processes if time and speed elements of communication were crucial to expected outcomes. It scores high on cost-saving.
- Southern Africa is next on the Primary Tier ICT utilization scale, at 29.98%, followed by west Africa at 21.35%. Next in tow is Central Africa at 13.90% utilization.
- On Country Basis at the Primary Tier, Niger ranks highest in use of phone (Voice) for data collection at 26.09%, followed by Zimbabwe at 21.74%.
- Zimbabwe ranks first in Data Collection via SMS at 23.19%, followed by Tanzania and Kenya who are tied on points at 10.14.
- Nigeria ranks first in the use of Smart/Android phones at 21.46%, followed by Kenya at 20.75%.
- More of ICT is manifesting at the primary Tier. Also, far from relying on Mainstream technologies (such as computers), the infusion of emerging ICT channel to Cooperatives is traceable to mobile telephone.
- Majority of cooperative members in the eight African countries where this study is conducted are on a proficiency range of between 11 & 20%. There are instances too, where none of cooperative members is found to have basic knowledge of computer operations. Such environment elicits 'compu-phobic' reactions. Concurrently, there are near-elitist scenarios where computer savvy members have computer literacy grasp ranging at 81% and above. These are far in-between.
- More cooperative came up in the last 10 years (2007 – 2017) than previous decades. A major contributory factor could be traced to the financial crisis also known as the global financial melt-down. Whereas many economic activities contracted across the world during the period leading to many businesses fold-up, the cooperative institution thrived when other businesses were contracting. Countries such as Zimbabwe, South-Africa and Rwanda, have experienced increase in primary cooperative in the last 10 years than prior years, compared to other countries, which experienced increase too.
- Majority of the cooperatives which are manifesting some semblance of gravitation towards ICT at the moment operate client-server model. while this is not entirely bad in itself, movement towards shared services could be beneficial on the long-term.
- On percentile scale, computer literacy is low among members across the continent. This partly accounts for the reason why most cooperatives did not automate their operations. The import of this is that integration and adoption of computer use in Cooperative business administration is very low.
- information gathering process among cooperatives in Africa is largely manual. Automation and use of ICT tools enhance data gathering process and make it seamless.

- Use of phone calls and SMS gained prominence as methods of data sharing. It is cheaper and readily available. At least one can be found in every house. The task remains to grow the band of members on social media platforms.
- Some of the barriers militating against the uptake of ICT include: "Inability to identify ICT relevance", "Lack of Awareness of Potential Benefits", "lack of ICT knowledge, technology expertise and implementation techniques", "perceived cost and, or lack of financial resources, Inability to identify very suitable ICT platform from vendors, Not too strong interest of principal officers, Inability of the staff to adapt etc.
- Finally, the degree of willingness on the part of the cooperative members to make a token financial commitment towards the deployment of a full automation process came to fore. Majority of the respondent desire the growth of the industry through the infusion of ICT even at their own expense.

Premised upon the foregoing findings, the following recommendations, amongst others are made, for:

1. The development of Cooperative Resources Information Management Solutions (CRIMS).
2. A multi-channel, user-friendly Cooperative application to be developed around mobile phones to address the heterogenous placement of members.
3. the identified issues to be addressed through concerted effort; Alliance Africa in conjunction with Government Departments and National Federations
4. National Federations to provide periodic ICT training for Affiliates (it would serve as alternative revenue generation for the Apex)
5. Alliance Africa and Country Apex to go into negotiated trade agreements with manufacturers and major distributors to provide hardware (mainstream technology and portable devices) at subsidized rate for members and coop secretariat use at structured, installment payment.
6. Alliance Africa to formulate policies that will facilitate the adoption of ICT by the Cooperative Tiers and work together with National Apexes and government department for implementation because of ICT's potentials in speeding-up cooperative growth.
7. An uptake of ICT is truly in the best interest of African cooperatives. It is an enabler that will speed-up growth, transparency and accountability.



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# DEDICATION

Dedicated to The Cooperative Movement Across Africa.

That they may be fed; those who hunger

That they may be replenished; those who are low

That they may be filled; those who sow.

....*Opeyemi Onifade*



## 1.0. INTRODUCTION

### 1.1 Introduction to Cooperative

The need for realization of common social and economic goals under a free and fair atmosphere is the central tenet of cooperative. It is an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly owned and democratically controlled enterprise (International Cooperative Alliance).

"Generally speaking the main economic aim of co-operatives is to increase the income of its members. Mentioning other type of advantages, co-operatives can reduce production costs and also decrease and internalize transaction (information) costs, with a better flow of information on consumer demand" (Dr. Gábor G. SzabóBudapest, Hungary 2005). Co-operatives operate a democratic system whereby every member qualifies as a decision maker in the affairs that concern running of the society. In other words, it is a system built on the principle of one man one vote.

In many respects, cooperatives resemble other businesses. They have similar physical facilities, perform similar functions, and must follow sound business practices. They usually incorporate under State law by filing articles of incorporation, granting them the right to do business. They draw up by-laws and other necessary legal papers. Members elect a board of directors. The board sets policy and hires a manager to run the day-to-day operations. However, cooperatives are distinctively different from other businesses. These differences are found in their purpose, ownership and control, and how benefits are distributed. These are usually referred to as cooperative principles and explain the way a cooperative operates. In other words, every cooperative society must be built on the following generally accepted values and set of principles in order to guide its operation (International Cooperative Alliance).

Co-operatives are voluntary organizations, open to all persons willing to accept the responsibilities of membership, without gender, social, racial, political or religious discrimination. Because it is a democratic organization, members control and actively participate in setting their policies and decision- making. Members create a 'commonwealth' through equitable contribution, and democratically controlled capital of the co-operative. It is not surprising, therefore, that Co-operatives are famous for their autonomy, capacity for self-help and democratic control by members. Towards effective contributions to development, the Co-operative provides education and training for their members, elected representatives, managers.

The hallmark principles of cooperatives are:

1. Voluntary and Open Membership:
2. Democratic Member Control:
3. Member Economic Participation:
4. Autonomy and Independence:
5. Education, Training and Information:
6. Co-operation among Co-operatives:
7. Concern for Community

In addition to the Seven Cooperative Principles, there are shared values which guide these principles.

Essentially, these values seek to provide disadvantaged folks and privileged people with fair treatment according to their needs, impact members and their communities beneficially, through deliberate course of actions and thought-through decision making and implementation. The cooperative values also make individual members accountable for their actions, responsibilities, and duties. They – the Cooperative values – seek to promote the betterment of individuals' immediate and distant futures by linking individual prosperous survival to the improvement of others' lives, premised on one-man, one-vote and fairness to all which discourage lone-voice but thrive on honoring the opinion and voices of all members and the fulfillment of their goals.

The Cooperative values are highlighted below:

1. Equity:
2. Self-help
3. Self-responsibility
4. Solidarity
5. Equality
6. Democracy

### 1.2 Cooperative in Africa

In African context, the emergence of cooperative movement can be traced through four (4) basic historical periods which are pre-colonial, colonial, post-colonial Africa and the era of liberal capitalism (Andrew Emmanuel Okem and Anne Stanton, 2016). Each of these periods came with its unique characteristics that define the operation of cooperative. These features reflect how cooperatives have transformed the society through the adoption of the principles and values.

In the precolonial period, cooperative was based on the doctrine of self-help. It was seen as the engine through which people realize social and economic objectives bearing in mind the interconnectedness of persons in the society. Examples of cooperative movement that was dominant in the period are savings and credit union. Others are collective management of farm holdings as well as grazing fields (Andrew Emmanuel Okem and Anne Stanton, 2016).

However, in the colonial period, the objective was not to use cooperative for social and economic development because of the influence of the colonial masters on different African colonies. The colonial masters established foreign cooperative structures with the intention of exploiting colony's agricultural resources for their benefit. It was characterized by monopolistic control as members were forced to join not for realization of societal benefits but in order to avoid trouble with colonial masters. Meanwhile, the emergence of modern cooperative in Africa occurred in this era.

After independence, the power to control cooperatives was vested in the government of each African countries. They were vested with the power to formulate cooperative policies, develop legal frame work and as well manage the affairs of cooperatives (Fredrick O. Wanyama). The government achieved this through ministries, departments and agencies that were saddled with the responsibility of managing the affairs of cooperatives. However, cooperatives were later turned to

Since government control of cooperatives that was characterized by inefficiency, mismanagement, corruption and embezzlement of funds have failed to deliver the desired result, next came the era of belief that cooperatives can be more effectively run and as well deliver efficiently independent of government. This has led to the operation of cooperatives in a liberalized economic environment (Andrew Emmanuel Okem and Anne Stanton, 2016). The removal of government control in the operation of cooperatives reinforced the importance and the recognition of principles and values underpinning the existence of cooperatives. Irrespective of the myriad of challenges that operation of cooperatives had gone through in Africa, it is still valid to say that the prime objective remained that of social and economic development even though the nature thereof was different at different times (Andrew Emmanuel Okem and Anne Stanton, 2016).

### 1.3 International Cooperative Alliance

International Co-operative Alliance (The Alliance), a non-profit and non-governmental Co-operative Federation founded in 1895 to advance the co-operative model, unite co-operatives worldwide and preserve co-operative values and principles is the apex organization for co-operatives worldwide, representing 306 co-operative federations and organizations across 105 countries (figures of November 2017); a representation of about 1.2 billion people spanning 2.6 million co-operatives worldwide. The Alliance Africa is one of the regional offices.

### 1.4 Alliance Africa

The Alliance Africa is one of the four regional offices of The Alliance that serves, unites and represents Alliance member organizations in Africa by promoting and strengthening autonomous and viable co-operatives through capacity building and policy advocacy for the socio-economic benefit of its members.

The Alliance Africa seeks to achieve, among others, the following set of objectives:

- Promoting development of co-operative movement in Africa;
- Promoting and protecting co-operative values and principles;
- Facilitating development of economic and other mutually beneficial relations between member organizations;
- Promoting sustainable human development and furthering the economic and social progress of people, thereby contributing to peace and security in Africa;
- Promoting equality between men and women in all decision making and activities within the co-operative movement;
- Lobbying for an enabling environment for co-operative development in Africa.

Germane to the realization of the objectives are cooperative data and data automation. For data automation to gain grounds, ICT uptake must become second nature among members. It is fitting, then, that a Review of existing Information Communication Technology, otherwise known as ICT in cooperative practice in Africa, with a view to establishing a user-friendly, integrated platform for cooperativism in the continent becomes pertinent, now, in view of state of extant cooperative data relative to quantity and quality.

Data, though elemental, is the pulse of communication. This assertion thrives on the reality that Communication is foremost to all successful enterprise. In fact, Inter & intra communication are sine-qua- non to qualitative and quantitative durability

of enterprises and institutions; the Cooperative movement across Africa is not exempted from this reality. This reality exerts pressure on Cooperative stakeholders to coordinate, generate, process, publish 'quantilitative' array of purposeful sets of data; in the ever-changing role as source and recipients of information.

The foregoing pre-supposes that the quality and quantity of available data; processed into information are convertible to developmental growth. On the flip side, lack of data makes Co-operative development difficult. The 'quantilitative' degree of available data has correlation for measurement and management. For instance, how Cooperative industry sector, or a subset, such as a primary, union or a sub-federation; or even the country apex is perceived is intertwined in communication. Is information available? If they are available, how easily could they be processed by 'number-smiths' and 'word-smiths' as a blacksmith reveling at his task on the forge, does? How efficient is the medium for collection, collation, processing and transmission of available data? Apart from the efficiency of the medium, there remains the dynamic 'humanware' in interchanging role. His state of mind, and perception of what serves beneficial interest among others are determinants of willingness which is a crucial decider in effective implementation of Cooperative ICT.

Essentially, there is interchangeable role of source and receiver of communication message between members; ordinary members, executive and council members on the one hand and regulator(s) on the other hand. Surplus productions of appropriate data which aggregate into meaningful and usable information enlarge the communication elements to improve economic circumstance and informational depth of stakeholders.

Currently there are two broad categories of data in cooperative movement; namely: 'Captured' and 'un-captured data'. The sub-set of captured data include: automated data and unautomated-hardcopy data (contained in ledgers and other printed matter). Yet, there are still a lot more of data that are still not being captured. These have negative implication for measurement and management because these sets of uncaptured information are critical for lobbying and advocacy purposes for Co-operative movements, and provide guidance and information to co-operative ministries, donors and development partners seeking to support co-operative movements in their countries.

Effective decision-making is founded on the quantity and quality of available data. By extension, Individuals and Institutions; both for profit, self-help and charity organizations need timely data for effective decision making, too.

Information Communication Technology is an enabler for compression of time and space; summed up in cost-savings and efficiency; it brings about exchange of information in faster and easier way. Ultimately, ICT reduces the distance and difference between members across geographical boundaries.

Information Communication Technology (ICT) has broadened the horizon of cost-friendly, time-sensitive electronic record keeping. Cooperative system with the duality of business and self-help is no exception in the need for quantitative qualitative data for effective business process management.

As development in the ICT sectors burgeons, cooperative system and Movement need to key into the emerging advancement for relevance.

The infusion of Information Technology in cooperative data processing and data management will, no doubt, fast-track convergence of cooperative management practice to cooperative business growth in tandem with the visions of stakeholders. As such, the cooperative movement should not by omission, or commission be left out in the adoption of ICT in cooperative practice; the potential is such that if driven by fair data representation and transparent management, the ripple effect will go a long way to benefit all stakeholders, cooperative societies, cooperative corporations and cooperativ

-e movements alike. Hence, it becomes pertinent to examine the extent of the adoption of a good Info-Tech system amongst the various cooperative movements across Africa via a thematic research process that will help in the evaluation. In view of the inherent beneficial effects of ICT in cooperative practice trailed in the introductory commentary above, it will suffice to ask:

- Do African co-operatives utilize ICT in their internal operations?
- Is the level of technical skill required in currently utilized ICT too much that it has become a disincentive to users and lowered the volume of users?
- Does Cooperative management require government endorsement of ICT platform to adopt ICT?
- Does Cooperative management require national apex endorsement of ICT platform to adopt a flexible Information and Communication Technology (ICT)?

1.5 Relevance of Study

There is paucity of data across the cooperative movement in Africa. However, this study makes case for quantitative and qualitative data in holistic form. It klieghlights the extant ICT platform in Africa. The study is a bold attempt at identifying gaps with a view to addressing them in the development of a user-friendly system.

1.6 Statement of Problem.

The study seeks to understand how African co-operatives utilize ICT in their internal operations. It also seeks to identify barriers to uptake of technologies by co-operatives across Africa with the aim of providing recommendations to improve on the Co-operative Data Analysis System (CODAS) and increase the band of cooperative connectedness through a shared ICT Platform bearing in mind that If the level of technical skill required is high, then ICT uptake may experience lower volume of users. Adopting a user-friendly I.T. Platform will encourage higher volume of users. It was expected that Government and national apex endorsement of specific ICT platform will influence adoption, which will in turn influence the data repository in the cooperative movement.

1.7 Objectives of Study

This research aims at reviewing the existing Information Communication Technologies (ICT) used by co-operatives in Africa for the purpose of establishing a flexible, user friendly integrated Management Information System that all tiers within the movement can utilize for their purpose.

Among others, the objectives of the research include;

- Review and assessment of the existing Information Communication Technologies in co-operatives within the spheres of influence of Alliance Africa.
- Assessment of the degree of ICT adoption in internal operations and business of co-operatives in Africa.
- Assessment of the level of manual intervention in internal operations and business of co-operatives in Africa and the challenges encountered in the process.
- Examination of ICT systems that are currently used by co-operatives and purpose.
- Identification of barriers to uptake of technologies by co-operatives.
- Identification of challenges faced in the daily operation of co-operative business in Africa.

- Description of the specific steps to be followed to improve on the CODAS functionality across the continent of Africa.
- Assessment of management buy-in of the newly developed platform co-cooperativism within the continent of Africa.
- Identification of the level of computer literacy of co-operative members within the spheres of influence of Alliance Africa.
- Identify the training needs which will be required to roll out the developed platform.
- Outline a comprehensive dissemination plan for the popularization of co-operative business through the developed platform.
- Examine the reporting structure of co-operatives within the spheres of influence of Alliance Africa.

1.8 Methods

Participants

Participants included 510 cooperative stakeholders. However, net mortality (114 primaries, 63 Unions (where applicable), 9 sub-federations (where applicable), 6 national apexes (where applicable) and 1 national department of Cooperative) turned up. The respondents in case of the cooperative strata are incumbent executive members.

1.9 Procedure

First, sample sets were identified using stratified sampling methods across 10 countries In Africa. These comprises 2 countries each, drawn from the five regions making up Africa. Although In North Africa, Morocco and Egypt were selected, responses were not received, timely. South Africa and Zimbabwe were selected from Southern Africa. DR Congo and Rwanda were drawn from Central Africa. Kenya and Tanzania were selected from East Africa, while Nigeria and Niger emerged from West Africa.

1.10.1 Regional Distribution

REGIONS	COUNTRIES
North Africa:	Morocco & Egypt
Southern Africa:	South Africa & Zimbabwe
Central Africa:	DR Congo & Rwanda
East Africa:	Tanzania & Kenya
West Africa:	Nigeria & Niger

Working through the National Apex (Federation) and the Alliance Africa Focal-Point-Persons, a sample set of 20 primary cooperatives, 20 Secondary/union (where applicable), 10 state/provincial/Regional Federation (where applicable), 1 National Apex and 1 Government department (where applicable) were generated.

In one stride, while compiling the sample set with a specific request to have national representation, visiting enumerators were introduced to the Alliance Africa Focal-Point Persons.

Afterwards, relying on technology to compress time and space of administration, online survey was administered via Virtual Reporting System (VRS); a proprietary software for conducting cost-friendly survey at Africa Prudential Plc.

Then, the online survey, depending on the country (French questionnaire for Francophone countries, and English for Anglophone countries) was dropped into recipients' email box. They were required to fill the questionnaire online; and submit

them via the same medium. Across board, the study sought to:

- Assess the extent to which co-operatives in Africa have adopted ICT in their internal operations, and in the way they do business.
- Identify barriers to uptake of technologies by co-operatives.
- Provide recommendations to improve on the Co-operative Data Analysis System (CODAS) that co-operatives across the board can adopt within the current context of connectedness in Africa.

#### 1.11. Assumptions:

This study was conducted based on the following assumptions:

- That the operation of cooperatives in Africa are manually driven.
- Majority of cooperatives in Africa are not fully coordinated in their operations.
- A high percentage of cooperative members in Africa are not IT-Inclined.
- The global technological advancement has penetrated the African continent.
- The cooperatives in Africa can adopt technology in their drive for coordination and improved structure.

#### 1.12. Limitation of Study

The following limitations were realized in the course of this study.

- Though some of the research tools were deployed to Francophone countries in French language, our non-proficiency in the French language still constituted a form of barrier in eliciting the appropriate responses required in some areas. We relied on interpreters to solve the challenge of language barrier.
- Some of the tools sent out via e-mail could not get to the targeted destinations due to the obsolescence of some of the e-mail addresses. Some of the respondents did not entertain responses via phone calls. Contacting these respondents physically was time-consuming due to the distance in some cases.
- Much of the existing research work concentrate on ICT in cooperative Agriculture practice, it affected what could have been a major source of secondary information.
- The research report was billed for completion within three months. We were certain to use VRS, a proprietary application for conducting survey to elicit responses from respondent in a timely, manner. We never anticipated major delay. However, respondents' apathy scuttled the simplistic approach and prolonged the completion period, marginally.

## 2.0 LITERATURE REVIEW

### 2.1 Background Information

Information and Communication Technology (ICT) has taken a center stage in all facets of human interaction in the 21st century; revolutionizing global capital flow, bilateral and multilateral trade, business interaction and social interaction through increased accessibility and transmission of information. At the firm level, the adoption of internet and other communication technologies has enabled businesses expand their market reach, improved the pace of innovation, process efficiency and profitability.

In this information age, successful businesses are those that better harness the power of information technology for superior performance. In this revolution, the need to examine the extent of adoption of ICT and its impacts on cooperative across the globe cannot be overemphasized. Hence, this review of literature will explore the impacts of ICT on businesses, the extent of its adoption and impacts on cooperatives businesses.

Suffice to say, Adoption of ICT is prone to actualities in the concept of 'rurality' and 'urbanity'; depending on which side of the geographic divide a cooperative is situated. Similarly, despite the way-around it, access to ICTs remains very low, particularly in rural areas and village level. Comparatively, that does not appear to be the case in the townships, and urban-city centers. Potential market size in relation to infrastructure capital outlay is a disincentive to service providers in locating bridging-ICT equipment in rural areas, unlike the urban-city centers where return on investment is almost guaranteed, abinitio.

Be that as it may, the explosion of information and communication technology is a cornucopia of opportunities for cooperative movement to communicate, connect, share, learn, access information and transact business (intra and intercommunity) with social-economic prosperity as the end-goal.

More than anything, ICT is capable of enlivening cooperative practice beyond being a data hub alone and encompassing information kiosks which provide fillip in education, health services, Agriculture and Irrigation, online trading, community services etc. An example is Farm-level Intelligent Decision Support system; developed to assist in determining optimal machinery management practices for farm-level system (Sami Patel and Sayyedl.U, 2014).

By way of incentive to adopt ICT in recent time, the prices of Information and Communication Technology (ICT) have been reduced dramatically so that private firms and consumers are now changing their behaviors, and without doubt, it has influenced the urban logistics system. The Cooperative sector can ill afford to be an island on its own. Keying into ICT will harness the strength of cooperative movement across Africa and accelerate cooperative development.

Information Communication Technology is a veritable tool in coordination and facilitation of development within the cooperative movement. It will enhance connectivity to Cooperative members who have access to and use ICT. It is understandable that cooperative members who are connected via ICT can share technical know-how and prevailing market information. In fact, when used appropriately, members benefit; they remain informed about the cooperative's activities, and cooperatives function more efficiently. With ICT, Cooperatives score higher in transparency, accountability, and cooperative administration becomes easier for executive management.



The need for capacity development, knowledge generation and dissemination, cooperative process enhancement and automation, among others, are the bases for ICT diffusion in cooperative transformation. Depending on the prism from which it is viewed, ICT is a multi-layered channel for delivering communication messages, symbols etc., from one end of a spectrum to another. ICT could also be categorized as a genre of mass media because of its functionality in transmission of coded stimulus.

It combines the strong points of letters, in print media, and lends access to audio just as in radio being a subset of electronic media. It still supports audio-visual functionality in television (all three from the Traditional media era)). ICT takes the online storage and retrieval of messages, symbols (and so on) to another dimension, which before now were unfamiliar.

Viewed from the perspective of Cooperative Movement, the use and gratification effect of ICT in Cooperative practice in Africa would facilitate): Access to market, enhancement of social networks, exposure to E-mail/Internet/Websites, mobile communication facilities and Improved social interaction, among others.

When viewed as a tool in social organization, ICT can give impetus to the social organizations and productive activity of agriculture. If nurtured effectively, it could become transformational factor. ICT must be calibrated to transferring knowledge as information packages to Agric-oriented cooperatives, for instance. Then, applied ICT will become more effective in meeting farmers' information needs. (Zijp, 1994).

Furthermore, ICT can bring new information services to rural areas where farmers, as users, will have much greater control than before over current information channels, market extension, sustainable agricultural development, participatory research, etc., are some of the numerous areas where ICT can play important role. (Shaik, et al January 2004)

Equally relevant is agenda setting. In its simplest form, relative to the Cooperative environment, agenda setting creates a relationship between priorities mapped-out and promoted by the opinion molders, and cooperative members' priorities on a scale of attention span.

Agenda setting in the cooperative context speaks to the fact that the hierarchy of Alliance Africa, typical of the agenda setting role it plays in the continent, identifies and agrees specific ICT direction and employs both mediated and non-mediated media to promote the identified ICT directions to cooperative stakeholders. The essence is to equate priorities which make the ICT priority of Alliance Hierarchy, the priorities of the movements and her stakeholders.

Agenda setting theory posits that "the public agenda—or what kinds of things people discuss, think, and worry about (and sometimes ultimately press for legislation about)—is powerfully shaped and directed by what the news media choose to publicize" (Larson, 1994). It needs no gainsaying that the proponent and dominant influencer of the ICT media reality in this instance is the Alliance Africa hierarchy. Thus, more time and space need to be dedicated to making case for implementation of ICT in cooperative practice in the continent. Such intensity of exposure has a relationship with ICT adoption in cooperative practice within the Movement and among stakeholders.

## 2.2 Impact of Information and Communication Technology on Business performance

Binuyo and Aregbesola (2014) studied the impacts of information and communication technology (ICT) on commercial bank performance in South Africa. The study covered a period of 12 years employing the orthogonal transformation approach and the residual co-integration regression analysis using both Pedroni and Kao methods. They discovered that the use of ICT increases returns on capital employed as well as return on assets of the South African banking industry. Their study revealed that more of the contribution to performance comes from information and communication technology cost efficiency compared to investment in information and communication technology. They recommended that banks

emphasize policies that will enhance proper utilization of existing ICT equipment rather than additional investments.

Franklin, Stam and Clayton (2008) in their paper titled "ICT Impact Assessment by Linking Data across Sources and Countries" covered 13 countries with the aim of developing new indicators on the economic impact of ICT in businesses without increasing the burden of surveys on respondent firms, and to extend consistent analysis of ICT impacts to new countries.

The results were achieved through data linking across surveys, including (for all the 13 countries) the common EU ICT use survey for business, the structural business survey, business register and, for some 'lead' countries; surveys in skills, international sourcing, ICT investment and innovation. The study was based on a set of core metrics from common surveys which all countries could analyze, and 'lead' analyses based on data available in groups of countries with additional data and based on the principle that important indicators are those related to productivity and growth impacts of ICT. The results show additional productivity effects associated with ICT, through competitive substitution in addition to the effects of firm. Evidence from the study suggests that productivity effects associated with ICT use in manufacturing are relatively consistent across the participant countries. However, effects in services are more diverse, depending on both type of industry and the level of ICT use in the country. Firm and industry level analyses also suggest that the productivity impacts of ICT are associated with its role in originating innovation, and in enabling firms to replicate successful innovation across markets.

Esselaar, Stork, Ndiwalana and Deen-Swarrray (2007) in their paper titled "ICT Usage and Its Impact on profitability of SMEs in 13 African Countries" argues that the negative return on investment reported in the literature can be attributed to the failure to distinguish between the formal and informal sectors. The study shows that ICTs are productive input factors and that their use increases labor productivity for informal as well as formal SMEs. The article further argues that there is still demand for fixed-line phones among SMEs but that mobile phones have become the default communication tools fixed lines are either too expensive or not available. The primary policy recommendation of the study is that applications for SMEs need to be developed using mobile phones.

Devaraj and Kohli (2003) in their paper titled "Performance Impacts of Information technology: Is Actual Usage the Missing Link?" posit that the driver of IT impact is not the investment in the technology, but the actual usage of the technology. The proposition was tested in a longitudinal setting of a healthcare system comprising eight hospitals and analyzed monthly data for a three-year period on various financial and nonfinancial measures of hospital performance and technology usage. Their data analysis provides evidence for the technology usage-performance link after

controlling for various external factors. The paper observed that technology usage was positively and significantly associated with measures of hospital revenue and quality and this effect occurred after time lags. The general support for the principal proposition of the paper that "actual usage" may be a key variable in explaining the impact of technology on performance suggests that omission of this variable may be a missing link in IT payoff analyses.

slam (2016), in his paper entitled "The Use of Information and Communication Technology (ICT) and Business Management: Contemporary Issues and Challenges", emphasized that Information and Communication Technology (ICT) is an integral

part of business management now-a-day and businesses are managing their resources by using ICT support that is helping them to perform their tasks faster and accurate than before. He highlighted that Developing Countries like Bangladesh are still struggling to introduce ICT supports in all areas of businesses and therefore the paper aims at identifying the present status of the use of ICT in business management and the challenges it faces. The paper employed mostly secondary data for the study which was collected from the different business reports and the journal papers. An experience survey was also conducted among the senior administrators of the business houses included in the study. The findings were that the use of ICT is very low in the small and medium business enterprises while the large business houses are using ICT supports. Results also show that the use of ICT primarily depends on the complexity and the nature of the business. Furthermore, entrepreneurs who have ICT literacy use ICT supports in the management of their businesses.

The study recommended that business houses in Bangladesh should use ICT support in order to increase the efficiency at their work, although this depends on the ICT infrastructure of the country as a whole. Pellegrina, Frazzoni, Rotondi and Vezzulli (2017) in their work entitled "Does ICT Adoption Improve Access to Credit for Small Enterprises" used data at the bank-firm level collected through the 9th UniCredit Survey conducted in 2012 on a large sample of small businesses and investigated the extent to which a large international bank offers better credit conditions to enterprises that use ICT more extensively. Their findings, which are robust to selection and endogeneity issues, show that banks tend to grant increasing volumes of credit to such enterprises. They interpreted this evidence as the *ceteris paribus* effect of ICT adoption by small businesses on the quality of information transmitted to banks. Another possible interpretation is that banks consider ICT adoption as a signal of firms' willingness to innovate.

Attom (n.d) in a study titled "The Impact of Information Communication Technology (ICT) on Business Growth Strategies of Small and Medium Scale Enterprises (SMEs) in the Amutu-Senya East Municipality of Central Region of Ghana" explained that in recent time, the pivotal role played by Small and Medium-scale Enterprises (SMEs) in Ghana through the engineering of the socio-economic development in employment creation and poverty alleviation. SMEs also previously faced avoidable challenges caused by poor information management coupled with non-compliance with information communication technological (ICT) innovations. The paper reiterated that in modern world of business, there is a speedy interdependence between a firm's ability to use information technology effectively and its ability to implement business strategies and to achieve business goals. The paper examined survey results on the impact of ICT on business growth strategies and profitability of SMEs by using a survey of 162 enterprises classified as small-scale (121) and medium-scale (41) enterprises within the Efutu-Senya East Municipality (mainly Kasoa and its environs) of Central Region of Ghana. Overall, the study revealed that majority of SMEs (73.29%) studied do not make use of ICT and this, to a greater extent, has had a negative effect on their growth potential and success. A shocking proportion of about 27% of SMEs use ICT in their businesses but further maintained it is too expensive to operate. The study recommended capacity building for SME operators about the benefits of ICT in their business processes and sensitizing them about its use would invariably turn the fortunes of their enterprises.

UNTAD and the Thailand National Statistical Office (2008) in their report titled "Measuring the Impact of ICT Use in Business: The Case of Manufacturing in Thailand" did detail analysis of trends in ICT use by the Thai business sector by looking in particular at the use of computers, the Internet and the web. This was done against the background of a continuous

increase in the proportion of businesses using ICTs in Thailand. The study also reviewed the specialized literature estimating the productivity impact of ICT use at the firm level in a number of developed countries. It then presents the results of the empirical analysis measuring the impact of ICT use on productivity in manufacturing firms, both at a general level and also by geographical region, industry branch, firm age and size. Their results indicated that the use of basic ICTs such as computers is important to firm productivity, particularly in countries where a significant proportion of businesses are still not using computers. The analysis also found out that, in addition to computer presence, Internet use and web presence are also reflected in higher labour productivity. The study showed that small and newly founded manufacturing businesses (especially the ones located in the north and north-east of the country) should receive more support both in terms of facilitating their access to ICTs and in terms of information campaigns on how ICTs can help in increasing productivity, improving the quality of products and better responding to demand. They also recommended the provision of technical information on how businesses implement ICT solutions that can provide additional guidance to industry-specific ICT strategies.

From the above, it is clear that Information and Communication Technology has a significant positive impact on business performance globally. In considering the need for qualitative and quantitative growth in cooperative operations across Africa, to embrace ICT in order to improve data availability transparency, accountability, response time to its members' requests.

Next, all categories of policy makers in the cooperative movement should be concerned in the facilitation and provision of necessary supportive infrastructure.

### 2.3 Challenges to Adoption of ICT by Businesses

Lai (2001), identified impedance which are barriers to the successful ICT adoption and integration. These impedances which could be structural, systemic or individualized limitation include:

1. Lack of competencies;
2. Limited accessibility
3. Lack of support
4. Shortage of time
5. Change process:
  - Entry;
  - Adoption;
  - Adaptation;
  - Appropriation;
  - Invention.

As with other businesses, data sets on the co-operative sector are important to policy makers and stakeholders for determining progress and health of the sector and the formulation and implementation of policy decisions at all levels.

At the moment, the cooperative movement in Africa is in transitional stage relative to Information Communication Technology (ICT). Manual and electronic record keeping, which is a sub-set of ICT functionality, co-exist. The latter has the unique advantage of fitting very large amount of data into unobtrusive portable digital space.

However, the full impact of social effects of holistic ICT adoption within the Cooperative movement in Africa is yet to be

seen, full blown. However, ICT in Cooperative practice in the continent is bound to have both anti-social and pro-social impacts. At peak, these may reflect in meeting attendance.

Expected too, Cooperative ICT with its sub-set enhancements such as Cooperative management system, and plug-in social media for member inter-connectivity will exert some measure of influence on members; this will in turn impact social interaction patterns either negatively (Anti-social effect) or positively (pro-social effect).

Bagchi and Udo (2007) studied the "Empirically Testing Factors that Drive ICT Adoption in Africa and Organization of Economic and Cooperative Development (OECD) Set of Nations". The study investigated factors that affect the adoption of information and communications technology (ICT) in Africa. The study also compares the ICT adoption factors in African nations with that of developed nations, represented by the OECD over a period of more than 21 years. Using a large set of data from World Bank and pooled regression analysis, they discovered that economic development, education/training, and infrastructures play a significant role in ICT adoption. The effects of these factors could be similar or different on developed and developing nations depending on the specific factors considered.

Braimok (2017) in a study titled "Exploring the Opportunities and Challenges of ICTs for Women Farmers in Kenya", examined the critical contribution of women to dairy farming in Kenya while acknowledging the relative deprivation of women compared to their male counterpart in access to productive resources. The paper noted that the dairy sector is severely underperforming and has been in decline for several decades and pointed out that the development of the sector relies on the empowerment of women and the achievement of gender equality to reverse the trend. Using the qualitative research methods of focus group discussions and individual interviews in Nakuru County. The study investigated the influence of Information and Communication Technologies (ICTs) on 24 women and men engaged in dairy farming. The study aimed at contributing to the understanding of how ICTs can be used as a tool for empowering women in agriculture to close decades of gender gaps. The findings showed that the women farmers in this study were making constructive use of mobile phones and radios, but not of the TVs or computer related ICTs, such as the Internet, due to either the associated high costs, not finding it relevant or useful for their survival needs and to some extent unaware of the possibilities. Furthermore, it was discovered that the women in the study have been self-empowered to some extent through the use of ICTs by expanding on their assets and capabilities, but ICTs alone do not empower and are inadequate for significant benefits to rise or emerge, not because they do not find them to be useful, but rather because they are firstly fighting on a day-to-day basis for theirs and their families' survival.

Ombati and Omulo (2017) examined "Factors Impacting the Adoption of e-commerce in Cooperatives." The study noted that adoption of e-commerce technology improves the contestability of small and medium agricultural companies with large companies even at the international level with important advantages for the country. The study discussed the factors impacting on adoption including quality of systems, satisfaction of systems, self-belief, and self-efficacy, attitude toward using technology, perceived risk, socio-economic status and trust using review of library documents. The study discovered that lifestyle and status within a social group such as gender, educational level, annual income and occupation has influence on adoption of e-commerce.

From the foregoing, the key factors mitigating against the adoption of ICT in some countries include level of education, ICT skills and competency, low income level, cost of ICT services and inadequate infrastructure. Hence, for businesses to embrace ICT and to boost the productive capacities of these countries, the identified issues must be addressed through concerted effort by governments and private sector players to build the necessary human capacity and infrastructural support in order to reduce the cost of information and communication services in these countries.

Lee, Kim & Zo (2017) studied the impact of Cooperative R & D Projects on ICT-Based Technology Convergence. The study pointed at scholarly works on the impacts of ICT on Cooperatives in some African countries and stated that the adoption of Information and Communication technology in Cooperatives hold a lot of potential for growth and increased profitability of the entities. The authors further stated that in spite of this, the impacts of ICT in cooperatives in Africa is far below optimal due to its slow adoption. The study examines how the characteristics of cooperative research and development (R&D) projects in the public domain impact information and communication technology (ICT) convergence. Using analysis of 416 cooperative R&D projects under the ICT-based industry convergence R&D program in Korea, the study finds that the characteristics of cooperative R&D projects significantly impact ICT convergence. Moreover, the participation of public research institutes and universities is critical for ICT convergence compared with that of firms. However, in firm-to-firm cooperation, the participation of small and medium enterprises contributes to cross-sectional convergence, while the participation of large firms leads to overall and longitudinal convergence. The study further discovered that project duration and homogeneous partners are also critical factors for ICT convergence. The results indicate several implications and guidelines on how to effectively organize cooperative R&D projects to facilitate technology convergence.

Sis, Hosseini & Karamidehkordi (2014) in their work title "Analysis of Factors Affecting the Adoption of Information and Communication Technology (ICT) by Farmers (A Study in Cis district of Shabestar City, Eastern Azarbaijan Province)" stated that Benefits of ICT and Infrastructure services is not equally divided between the areas and Without a coordinated strategy, there will be the risk of unequal developing of ICT in rural and urban areas. The research aimed at explaining the factors affecting the Adoption of Information and Communication Technology (ICT) by Farmers in Sis district of Shabestar city, eastern Azarbaijan Province.

The cross-sectional research is a correlational-descriptive study of about 270 farming households in the area. Using the Table of Morgan, 160 households were selected as the sample using structured interview and questionnaire (with confirmation of validity and reliability). They discovered that radio and television, highest educational level of the household, family, friends and relatives, access to Internet, subjectivity of sub-jobs of household superintendent and Jobs of household members have the greatest impact on ICT adoption.

#### **2.4. The Impact of ICT on the Cooperative's Landscape**

Wachira, Muturi and Sirma (2014) in their study titled "An Evaluation of the Perceived Effect of ICT's on the Performance of Savings and Credit Co-operatives (SACCOs) in Kenya." They explained that competitiveness of firms in the context of the current economic challenges requires effective management activities and a strategic importance directed towards a better administration of knowledge and the impact of Information and Communication Technology on organizational



structures. The study sought to evaluate the perceived effects of ICT on performance of Sacco's in Kenya through a census survey of 34 licensed Sacco's in Nairobi County. The study specifically evaluated the prospects of ICT in Sacco's in meeting their stated objectives, the level of awareness in Kenya, the levels of innovations, existing infrastructure, integration of the cooperative processes and the perception amongst the stakeholders. Their study focused on the perceived ICT factors towards performance such as innovations, infrastructure, awareness and policies. They did a comparative case study selected from different social economic settings and employed a survey research design. Data was collected using questionnaires to provide an insight into the phenomena.

They concluded that Sacco's should combine their 'hard' ICT investments (i.e. acquisition of new hardware, software and networks), with appropriate 'soft actions', in order to achieve higher levels of benefits and impact on business performance from them. One of these necessary 'soft actions' is the alignment of ICT investment to business strategy, which results in the selection of the most appropriate ICT investments that support to the highest possible extent the selected business strategy and action plan of the firm, and therefore leads to a higher level of ICT benefits and business impact. Firms who perceive use of ICT as beneficial, non-complex, compatible and of low risk to use are more likely to adopt ICT in day to day business. This is compatible with previous studies illustrating that the main barriers to ICT adoption are simply the concern that the ICT would not lead to more efficiency, lower costs or more revenues. Consistent with previous research, the study also revealed that ICT skills and knowledge can crucially increase its adoption. They recommended that SACCO should conduct a thorough strategic Plan to illustrate how market forces can compel the Sacco's to make radical shifts in their organizational environment and culture; that Sacco should align ICT Plans with Business Plans and conduct reengineering studies and develop strategic ICT plans to align key ICT needs with those of the business.

Oladejo and Yinus (2014) in their study titled "An Influential Analysis of the Impacts of Information Technology (IT) on Cooperative Services in Nigeria" explained that cooperative societies are designed as individual self-help and empowerment vehicles for micro-credit delivery. They emphasized that testing the impact of IT on Cooperative operational activities and service delivery in Nigeria is expected to give insight into the state of cashlessness of the African economy and provide measuring guide to organization relating to electronic commerce. The paper attempts to investigate the impact of information technology on cooperative services as a basis for attainment of MDG objectives relating to e-commerce. They employed both descriptive and inferential techniques of Frequency table, percentage and non-parametric statistical test, ANOVA to analyze the data and test the formulated hypothesis using STATA 10 data analysis software.

They discovered that information technology is positively significant to cooperative service in Nigeria and that investment in IT by Cooperative organizations will improve their performance through high level of patronage by members. The paper recommended that cooperative management should provide adequate IT facilities to the cooperative staff and proper training should be given to the employees in order to meet the quality of service needed by the members. Furthermore, they recommended that there should be free flow of information between the cooperative organizations and their members and that cashless policy should also be extended to cooperative organizations that account for seventy percent of the low-income group to facilitate the MDG objectives relating to e-commerce.

Teodosio (2007) in a study titled "Agricultural Cooperatives and Information Communication Technology in an Emerging Asia" posited that technology is playing an increased role in agricultural cooperatives which exist in almost all the countries in Asia and enjoy legal recognition, through the interface of Internet and telecommunications to increase the amount of information available to cooperatives and their members. Nonetheless, their capacity to access and manage the data, information and knowledge differs from the level of information systems available and critical State support. The study highlighted that ICT applications from business to consumer have enabled cooperatives to identify products and marketing opportunities in the context of WTO implications while stressing that Asia has both very successful and those in dire trouble agricultural cooperatives. However, the study pointed out that there is a lot of knowledge sharing in the movement and this has helped tear down barriers between and among cooperatives. Many cooperatives which have their own customized systems, standard procedures and particular innovation have brought to life a wide range of good practices in agricultural cooperatives.

The study discovered that Information communication technologies (ICTs) afford opportunities for a knowledge management system that proved sustainable for agricultural cooperatives. The study stated that the world has 800 million cooperatives members and highlighted a number of successful agricultural cooperatives. In conclusion, the study stated that the cooperative sector in Japan has 30 million members; India with 236 million; South Korea, 5 million farmers, Thailand has 6 million members; Philippines, 5.6 million and Malaysia, 5.5 million and these countries have all added new sophistication in terms of a global projection for agricultural cooperatives because of communication technology.

Ashraf & Murtaza (2008) in their paper titled "Use and Impact of ICT on SMEs in Oman" conducted an exploratory study to learn about the use and impact of Information and Communication Technologies (ICT) on Small and Medium Sized Enterprises (SMEs) in Oman. They investigated ICT infrastructure, software used, driver for ICT investment, perceptions about business benefits of ICT and outsourcing trends of SMEs while providing an insight on the barriers for the adoption of ICT. Data on these aspects of ICT was collected from 51 SMEs through a survey instrument. They discovered that only a small number of SMEs in Oman are aware of the benefits of ICT adoption and that the main driving force for ICT investment was the need to provide better and faster customer service and to stay ahead of the competition. The study highlighted that majority of surveyed SMEs have reported a positive performance and other benefits by utilizing ICT in their businesses. Majority of SMEs outsource most of their ICT activities. Lack of internal capabilities, high cost of ICT and lack of information about suitable ICT solutions and implementation were some of the major barriers in adopting ICT.

Bwisa (2010) in his work titled "Entrepreneurial Approach to the Use of ICT for the Growth of Africa's Co-operative Movement: The Case of Mobile Phone." The study was based on the author's interaction with Kenya's farming co-operators which revealed the lack of farmers' empowerment and their inability to maximize returns from his/her produce as a result of exploitation by the middlemen who have monopolized market information which they use to exploit the farmers. The study was necessitated by the preponderance of cooperatives in Africa in the agriculture sector and to explore how farmers can be assisted to eliminate the exploitative middlemen with the use of information and communication

technology (ICT). The paper employed both quantitative and qualitative technique of analysis. It discovered the presence of price differentials in agricultural products in various parts of the country which is being exploited by middlemen due to the absence of information on this to farmers and cooperative farmers' unions are not playing their key roles of removing middle men in the agricultural sector.

The study further highlights the optimistic picture of the potential impacts mobile phones can play for the continent's farming community in general and cooperators who are members of the Savings and Credit Cooperative Organisations (SACCOs) in particular. It proposes a model that the African Confederation of Cooperative Savings and Credit Associations (ACCOSCA) can use to empower Africa's SACCOs to empower the farming SACCO members.

Based on the scholarly works on the impacts of ICT on Cooperatives in some African countries, it is instructive that the adoption of Information and Communication technology in Cooperatives holds a lot of potential for growth and increased profitability of the entities. In spite of this, the impacts of ICT in cooperatives in Africa is far below optimal due to its slow uptake.

### 3.0 APPROACH AND METHODOLOGY

This study assesses the extent to which co-operatives in Africa have adopted ICT in their internal operations and in the way they do business. It also identifies barriers to uptake of technologies by co-operatives across Africa with the ultimate aim of providing recommendations to improve on the Co-operative Data Analysis System (CODAS) and increase the band of cooperative connectedness through a shared ICT Platform.

Eight countries across the continent formed the representative sample.

#### 3.1 Justification of Selected Countries

The countries selected for this study were chosen based on the following factors:

- They cover the entire five regions which form the sphere of influence and oversight of Alliance Africa. Inversely, Alliance Africa represents the continent and the five regions of Africa in the global circuit.
- The research was originally designed to cover 5 regions of Africa. However, the degree of support elicited was insufficient for enumerators' field work at Egypt and Morocco; so, the research exercise was limited to eight (8) countries across four regions at two countries per region.
- These countries have the potentials for greater economic, social and technological development in the near future
- These countries were chosen in line with the objective of this study which is to strengthen the institutional and operational capacities of the Alliance global and regional offices, as well as member organizations, by reinforcing their capacities for coordinated actions at global, regional and / or national levels.

#### Morocco

Morocco is an Arab country located on the northwest corner of the African continent. It is located in the Maghreb region of North Africa, along with Tunisia, Libya, Algeria, and Mauritania. Morocco is famous for its organized cooperative system and the world's largest subtropical desert,

#### Egypt

Egypt, is a Mediterranean country and transcontinental too, spanning the northeast corner of Africa and southwest corner of Asia by a land bridge formed by the Sinai Peninsula. With approximately 92.4 million inhabitants (2017 figure). Egypt is the most populous country in North Africa and the Arab world, the third-most populous in Africa (after Nigeria and Ethiopia). There is a lull of sort in the cooperative vibrancy post Arab-spring revolution in Egypt.

#### South Africa

Republic of South Africa (RSA), is the southernmost country in Africa. It is the largest country in Southern Africa and the 25th-largest country in the world by land area. It has close to 56 million people (55.9 million (official estimate 2016)). South Africa has a mixed economy. It also has a relatively high GDP per capita compared to other countries in Sub-Saharan Africa. There is high cooperative presence in the country.

#### Zimbabwe

Zimbabwe, also known officially as the Republic of Zimbabwe, has a population (according to 2016 estimate) of about 14.2 million people. Zimbabwe has 16 official languages, with English, Shona, and Ndebele the most commonly used.

Although tourism is significant to Zimbabwe's economy, Minerals, gold, and agriculture are the main foreign exports of Zimbabwe. Cooperative system thrives in Zimbabwe.

#### DR Congo

The Democratic Republic of Congo is located in Central Africa. It is the most populated Francophone country. DR Congo is one of the world's richest countries in natural resources.

Cooperative practice is popular in DR Congo.

#### Rwanda

The Republic of Rwanda is a sovereign state which borders Central and East Africa. The land of thousand mountains has a population of 11.5 million (2016 estimate). Cooperative practice thrives in Rwanda and offers alternative means of livelihood to the people.

#### Kenya

The Republic of Kenya is one of the frontline success stories in Africa on Cooperative matters. The country is by far the biggest and most advanced economy in east and central Africa. Kenya has a population of approximately 48 million (2017 estimate). The vibrant and dynamic cooperative movement in Kenya is a key player in the economy, controlling about 43 per cent of Kenya's gross domestic product (GDP). The Cooperative Societies in Kenya is a major employer of labour. It also provides opportunities for self-employment and entrepreneurship to many more.

Spoken languages are Swahili and English (both official), and numerous indigenous languages mainly Kikuyu and Luhya.

#### Tanzania

The United Republic of Tanzania, is a sovereign state in eastern Africa within the African Great Lakes region. It harbours Mount Kilimanjaro, Africa's highest mountain. Tanzania's 2016 population estimate by the United Nation stood at 55.57 million. The population is composed of several ethnic, linguistic, and religious groups. Tanzanian economy thrives on strong tourism, telecommunications, banking and cooperative practices.

#### Nigeria

The Federal Republic of Nigeria, is situated in West Africa. It comprises 36 states and the Federal Capital Territory, Abuja. According to UN estimate, Nigeria has a population of 192 million people (UN est. in 2017).

Nigeria is classified as an emerging market with a well-developed financial, legal, communications, transport sectors.

Cooperative practice thrives in Nigeria and offers economic alternatives to the masses and the unemployed.

#### Niger

The Republic of Niger is located in West Africa. It has population of about 21 million people.

The economy of Niger centers on subsistence crops, livestock, and some of the world's largest uranium deposits. Niger is a fertile ground for cooperative practice.

### 3.2 COOPERATIVE AND TIERS

A cooperative is "an autonomous association of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly-owned and democratically-controlled enterprise". –ILO

The first tier of cooperative is the associative aggregation of individuals whose felt-need and socio-economic circumstance are improved by pooling and formation of common wealth which are needed at alternate periods for creation and satisfaction of utility. Such associations are typified by the singular objective of the association or cooperation. Simply put, this is the primary cooperative, characterized by individuals forming a group of individuals bound by near-common aspiration(s). Hence, 'it'- the primary cooperative could be producers, agricultural, housing, or marketing cooperation etc.

When the utility-objective transcends singularity to hybrid of objectives, the cooperative association i.e. primary cooperative becomes multi-purpose by objective. The second and third-tier cooperatives are multi-stakeholders. Unlike the primaries, their members are not individuals, but aggregation of other cooperatives. As earlier said, members are not individuals. Instead, all members are cooperatives at second and third tier.

Occupying the second-tier cooperative is the co-operative federation or secondary co-operative.

The corollary of secondary co-operative is the Co-operative Union, which occupies the 3rd tier by goal. The distinguishing feature is the overarching-goal as described by Charles Gide, a cooperative economist; as the drive "to develop the spirit of solidarity among societies and in a word, to exercise the functions of a government whose authority, it is needless to say, is purely moral." This lofty goal distinguishes a Cooperative Union from a secondary Cooperative. The desire to develop the spirit of solidarity distinguishes Cooperative Union from Secondary Cooperatives. However, veering away from the delicate finery of academics, secondary cooperative and cooperative union are synonymously used in many climes. In such instances the decider lies in membership; being cooperatives. The constant is that Cooperative Federation aids member to strengthen and work together across different boundaries. A good example is International Cooperative Alliance.

An all-inclusive five-tier structure was adopted for the purpose of this study. These include:

1. The Primary Cooperative
2. The Secondary Cooperative/Union
3. State/Province/Regional Federation
4. The National Federation/Country Apex
5. Ministry/National Government Department of Cooperative

**A Primary Cooperative society** is a cooperative society whose membership is restricted to individual persons.

**The Secondary Cooperative Society/Union** is an aggregated society whose membership comprises of primary societies. A Cooperative Union is synonymous to Secondary Cooperative.

State/Province/Regional Federation is a cooperative with dual distinguishing features. One, it is an aggregation of Secondary cooperatives. Second, the aggregation of secondary cooperatives is qualified by space i.e. geographic location, hence an aggregation of federating secondary cooperatives in a State, Province or Region.

There are national cooperative organizations who offer specialized services to their affiliates

**The apex society** is a country's constitutionally defined representative umbrella body for all cooperatives; the federating cooperatives and the movement. Its membership is the aggregation of Cooperative federations; by membership

(secondary) or geographic space (Regional, province/district or state). In an ideal setting the country Apex is a Self-Regulatory Organization (SRO)

The Ministry/National Government Department of Cooperative is a cooperative regulator, a two-way conduit of information, first being the purveyor of government directives and focus cooperative; next, the conveyor of Cooperative expectations to Government and the bridge between both institutions.

4.0. DATA ANALYSIS AND INTERPRETATION

4.1. Data Analysis

4.2 Existing information communication technologies (ict) in cooperatives within the spheres of influence of alliance Africa.

In reviewing the existing Information Communication Technologies (ICT) in cooperatives within the spheres of influence of Alliance Africa,

it is important to evaluate the following:

- a. Prevailing Record keeping System across the cooperatives
- b. Data Automation system used

4.2.1. Prevailing Record keeping System across the cooperative:

Findings show that manual operation is rife in cooperative administration across the study area. For instance, the highest incidence of manual record keeping obtains at the Secondary/Union tier at 48.62% hardcopy ledger-entry.

Following close, in manual record keeping still, is the primary Tier at 23.03%

Incidentally, the mass of members who require timely services are within the Primary and Secondary cluster.

The use of Ledger for record-keeping is relatively widespread at the sub-Apex federation level as indicated in Table 1 below that State/Regional Federation practice 16.21% manual entries. National Federation tend to fare better at 12.15%.

Table 1 contains the details.

Record Keeping System				
Tier	Ledger r	Computer System	file Hosting g	Hybrid
Primary	23.03	23.35	26.54	8.76
Secondary/Union	48.62	22.57	18.95	21.75
State/Regional Federation	16.21	21.63	27.25	27.80
National Federation	12.15	32.45	27.25	41.69

Chart 1: Record Keeping System

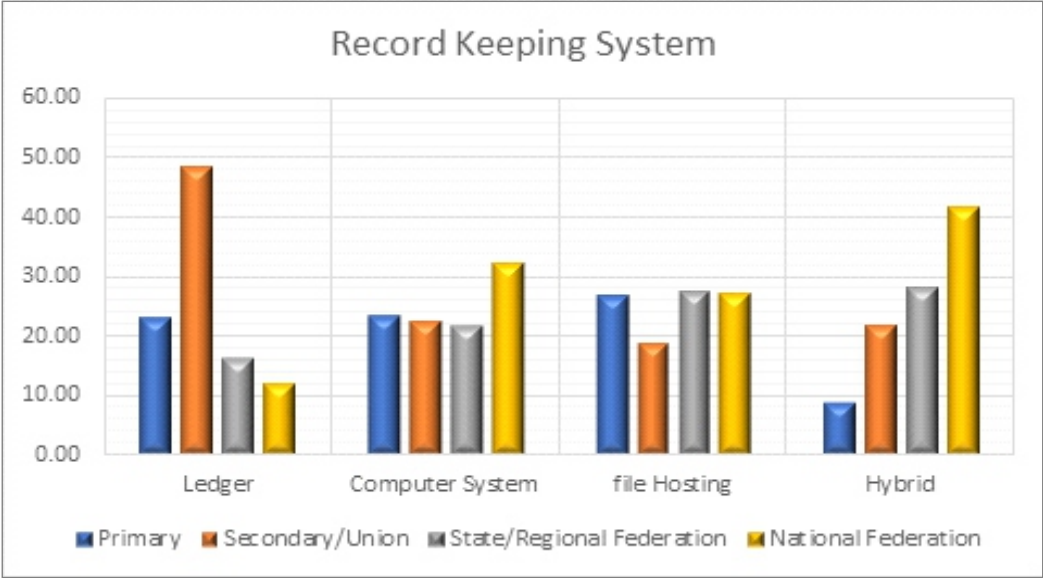




Chart 1 above shows a tendency towards below average application of computer record keeping system. Yes, across the cooperative tiers computer has been accepted as an administrative tool. However, its part is the under-utilization is glaring. The highest application of computer as a record keeping tool is seen at the National Federation/Country Apex Tier at 32.45%. Primary, Secondary and State/Provincial/Regional Federation Tiers make 23.35%, 22.57% and 21.63% application in record keeping, respectively.

Remarkably, across the spectrum of cooperative Tiers, there is a growing size of trend blazers who keep records on online real-time basis on clouds. 26.54%, 18.95%, 27.25% and 27.25% are the cloud-based records for Primary, Secondary and State/Provincial/Regional Federation, respectively. These mixt of record keeping system still allow flexibility for a 'hybrid' which shows cooperative in the continent practicing a motley of record keeping system.

The conclusion on the current record keeping system is; there are common record keeping trends across the study area. The trend speaks to the fact that these cooperatives are in a transitory mode; from predominantly manual mode towards automation and ICT. It can still be better as there is room for improvement.

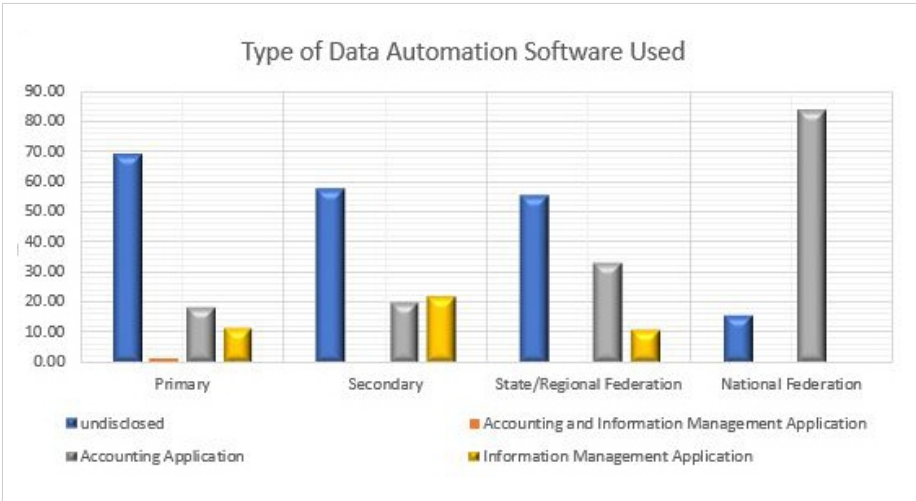
4.2.2 Data Automation System

While gauging the type of application used by cooperatives, a common, trend was observed. There is a high rate of 'undisclosed'. The lack of disclosure or inability to volunteer software name is suggestive of cooperative administrative system without an Accounting Application, or Information Management Application.

Type of Data Automation Software Used				
Software	Primary	Secondary	State/Regional Federation	National Federation
Undisclosed	69.30	58.00	55.56	15.87
Accounting and Information Management Application	0.90	0.00	0.00	0.00
Accounting Application	18.40	20.30	33.33	84.13
Information Management Application	11.40	21.70	11.11	0.00

There was a 69.30%, 58%, 55.56% and 15.87%% 'undisclosed' feedback for Primary, Secondary and State/Provincial/Regional Federation, respectively.

Chart 2: Data Automation Software



Sequel to Table 2, Chart 2 illustrates the distribution of applications, the highest occurrence for Accounting Application is seen at the National Federation (at 84.13%). State/Regional Federations makes use of Accounting application more than Information Management Application at 33.33% to 11.11%.

The Conclusion; Accounting Application lacks the depth and flexibility to provide solution-as-service to manage members records. Interestingly, it ranks second in percentile frequency to undisclosed. Information Management Application are better tuned to serve MIS- Management Information System role.

To Cap, having assessed prevalent ICT platform across the African region, it is safe to say that ICT uptake is low. The degree of existing ICT lacks the robustness and flexibility required to manage a dynamic sector if it truly desires to meet the challenges of emerging uniqueness in members' inclusive and exclusive needs, when and how to be served, timely. A robust system takes service delivery to members beyond 'plain vanilla' which exclusive accounting application offers.

4.3 ASSESSMENT OF ICT UTILIZATION IN INTERNAL OPERATIONS AND BUSINESS OF CO-OPERATIVES IN AFRICA

There are two modes of ICT which operates concurrently in the cooperative circuit in Africa; the Mainstream technologies (such as computers), and the portable hand-held devices (such as phones tablets etc.). Each has its unique strength and weakness. At the administrative-end of ICT utilization, the Mainstream technologies are used to administer the members. However, at the user-end of the ICT utilization, portable (mobile) hand-held devices like phones give convenient user-experience. This does not exclude user-members from using mainstream technology.

Research findings show that Cooperative leverage on ICT across the coverage area is relatively low when compared with some other sectors where ICT-use is higher. Manifest contents gleaned from respondents across four regions of Africa shows primary cooperatives from the Eastern African region to be higher, at 34.77%, in the use of elemental subsets of ICT. The computation is based on the number of active emails, websites and smart/android phones. How much of information Communication Technology channels used in data collection from members equally counted. Data collection channel indicated by respondents include phone calls, SMS, and e-mail. Across the Primary tier too, they use this same mediated channel to share-out (disseminate) information, thereby reducing the band of face-to-face communication which would have delayed administrative and other cooperative processes if time and speed elements of communication were crucial to expected outcomes. It scores high on cost-saving. Southern Africa is next on the Primary Tier ICT utilization scale, at 29.98%, followed by West Africa at 21.35%. Next in tow is Central Africa at 13.90% utilization.

On Country Basis at the Primary Tier, Niger ranks highest in use of phone (Voice) for data collection at 26.09%, followed by Zimbabwe at 21.74%. Zimbabwe ranks first in Data Collection via SMS at 23.19%, followed by Tanzania and Kenya who are tied on points at 10.14. Nigeria ranks first in the use of Smart/Android phones at 21.46%, followed by Kenya at 20.75%. See Table 3 for details.

Table 3: Primary Tier ICT Utilization

Primay		Central Africa		East Africa		West Africa		South Africa	
	Elements of ICT	D.R. Congo	Rwanda	Kenya	Tanzania	Niger	Nigeria	South Africa	Zimbabwe
	e-mail activation	0.88	6.14	15.79	11.40	0.88	6.14	6.14	0.88
	Website Activation	1.45	1.45	20.29	7.25	0.00	1.45	0.00	0.00
	smart/android	3.30	4.48	20.75	15.09	11.79	21.46	6.13	16.98
	Data Col: Phone	4.35	5.80	8.70	8.70	26.09	5.80	10.14	21.74
	Data Col: SMS	2.90	1.45	10.14	10.14	0.00	5.80	0.00	23.19
	Data Col: email	0.00	1.45	10.14	2.90	0.00	4.35	11.59	0.00
	Data Share-out via Phone	1.75	8.77	13.16	8.77	6.14	7.02	10.53	14.04
	Data Share-out via SMS	1.75	12.28	0.00	7.89	2.63	7.89	8.77	13.16
	Data Share-out via e-mail	0.88	11.40	0.00	5.26	0.88	0.00	7.89	0.88
	Country Total	3.40	10.49	19.51	15.26	9.54	11.81	12.07	17.91
Regional Total		13.90		34.77		21.35		29.98	

At the Secondary tier, Southern Africa region ranks highest, at 46.15%, in the use of elements of ICT. The computation is an aggregation of Data Collection and sharing via Phone calls (Voice), Data Collection and sharing via SMS, the number of active emails and data collection and sharing via the channel of e-mail. Cooperative's setting-up and ownership of email, websites and prevalence of smart/android phones among members for web access.

Data collection channel indicated by respondents include phone calls, SMS, and e-mail. Across the secondary Tier too, they use this same mediated channel to share-out information. Among others, the sum of these reduce the band of face-to-face communication which would have delayed administrative and other cooperative processes if time and speed elements of communication were crucial to expected outcomes.

East Africa is next on the Secondary Tier ICT utilization scheme, at 31.98%, followed by west Africa at 14.98%. Next is Central Africa at 6.88% utilization.

On Country Basis at the Secondary Tier, South Africa ranks highest in: Data Sharing – Bulk SMS, Data Sharing Phone Calls, Data Sharing-email, Cooperative Ownership of email account at 24.64, 24.64%, 20.29% and 26.09%. Please see table 4 for details.

Table 4: Union/Secondary Tier ICT Utilization

		Central Africa		East Africa		West Africa		South Africa	
Union/ Secondary	Elements of ICT	DR Congo	Rwanda	Kenya	Tanzania	Niger	Nigeria	South Africa	Zimbabwe
	Data Collection - Phone Calls	0.00	1.45	1.45	15.94	13.04	1.45	13.04	1.45
	Data Collection - SMS	0.00	1.45	1.45	13.04	1.45	1.45	14.49	0.00
	Data Collection - e-mail	0.00	1.45	1.45	1.45	1.45	1.45	14.49	0.00
	Data Sharing - Bulk SMS	1.45	0.00	1.45	18.84	0.00	2.90	24.64	5.80
	Data Sharing - Phone Calls	1.45	5.80	1.45	18.84	17.39	1.45	24.64	4.35
	Data Sharing - e-mail	1.45	4.35	1.45	8.70	1.45	1.45	20.29	0.00
	Ownership - E-mail	1.45	2.90	1.45	24.64	1.45	5.80	26.09	2.90
	Ownership - Web	1.45	0.00	1.45	1.45	0.00	1.45	13.04	0.00
	Country Total	2.02	4.86	3.24	28.74	10.12	4.86	42.11	4.05
	Regional Total	6.88		31.98		14.98		46.15	

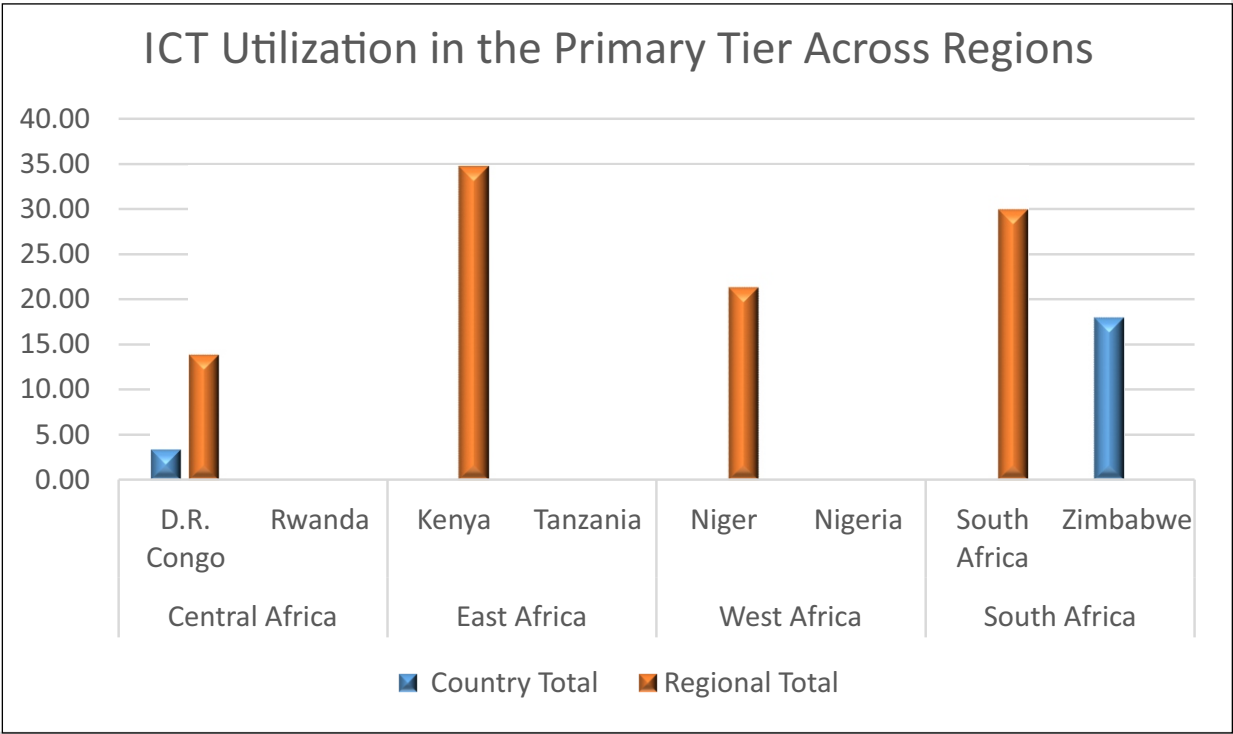
Regional ICT Utilization

At 34.77% Cooperatives in the primary Tier in East Africa utilize available ICT tool more than other regions in the primary tier. Kenya leads the utilization chart at 19.51 from East Africa. Following East Africa is Southern Africa at 29.98%. West Africa Utilization rate stands at 21.35%. From the available data, Central Africa utilizes 19.90% as shown in Table 5, and ICT Utilization in the Primary Tier Across Regions Chart, below.

Table 5: Regional ICT Utilization

Primary		Central Africa		East Africa		West Africa		South Africa	
		D.R. Congo	Rwanda	Kenya	Tanzania	Niger	Nigeria	South Africa	Zimbabwe
	Country Total	3.40	10.49	19.51	15.26	9.54	11.81	12.07	17.91
	Regional Total	13.90		34.77		21.35		29.98	
Secondary		Central Africa		East Africa		West Africa		South Africa	
		DR Congo	Rwanda	Kenya	Tanzania	Niger	Nigeria	South Africa	Zimbabwe
	Country Total	2.02	4.86	3.24	28.74	10.12	4.86	42.11	4.05
	Regional Total	6.88		31.98		14.98		46.15	
State, Regional Federation		Central Africa		West Africa					
		Rwanda	Niger	Nigeria					
	Country Total	29.27	53.66	17.07					
	Regional Total	29.27	70.73						
Country Apex		Central Africa		East Africa		West Africa		South Africa	
		Rwanda	Kenya	Tanzania	Nigeria	South Africa	Zimbabwe		
	Country Total	16.13	12.90	19.35	19.35	16.13	16.13		
	Regional Total	16.13	32.26		19.35	32.26			

.Chart 3: ICT Utilization in the Primary Tier Across Regions



Coming Second in the Regional Utilization ranking is the Secondary Tier. Here, Southern Africa tops in ICT utilization pattern at 46.15%. South Africa is the major contributor to that poll position at 42.11%. East Africa follows closely at 31.98%, helped along by ICT utilization in Tanzania, West Africa comes thirds at 14.98%, followed by Central Africa. See Chart 4. below.

Chart 4: ICT Utilization in the Secondary/Union Tier Across Regions

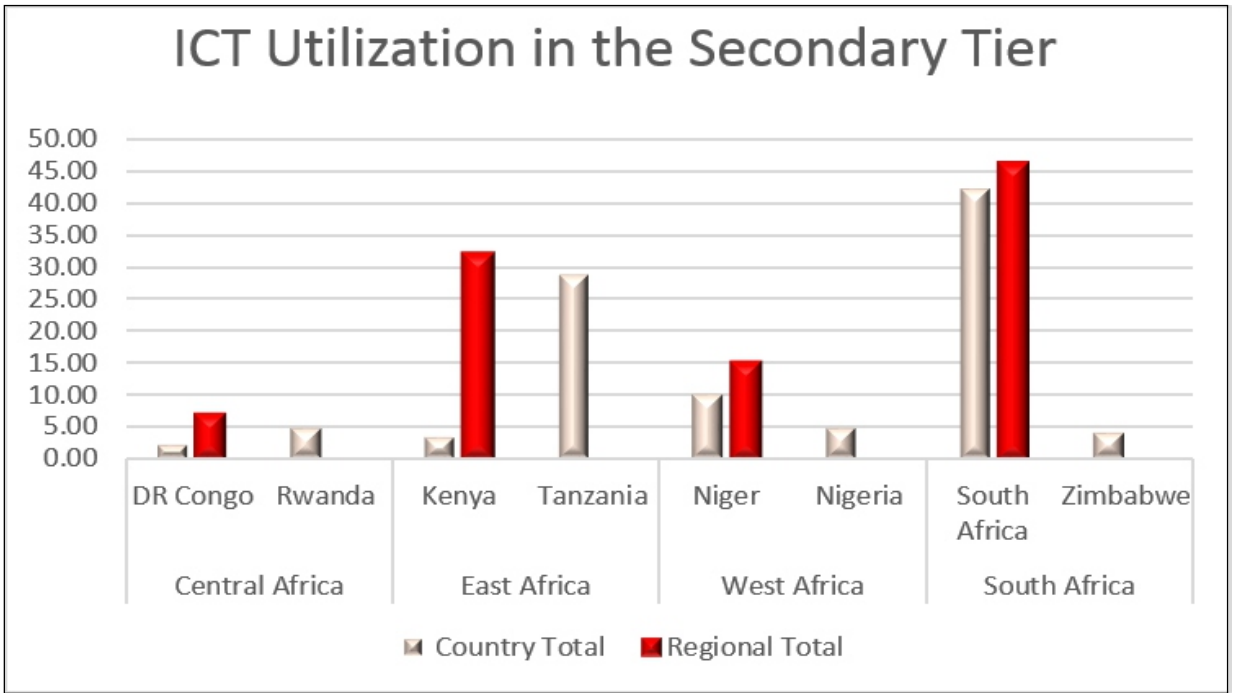
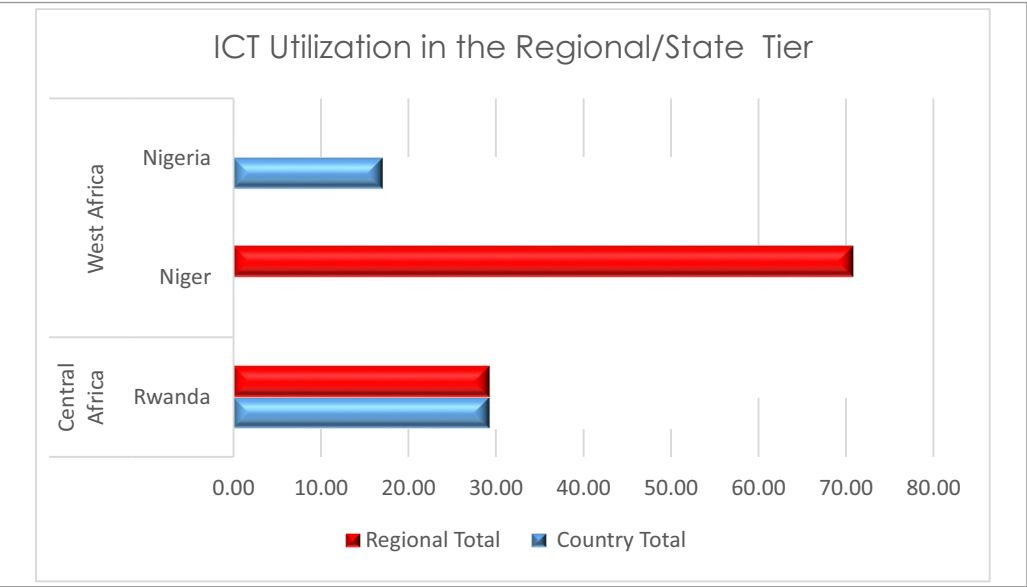


Chart 5: ICT Utilization in the State/Province/Regional Tier Across Regions



West Africa leads mediated cooperative process in the state/Province/Regional Federation category at 70% followed by Central Africa, going by available data. Niger is the driver of the leadership at 53.66%. Niger relies heavily on the use of mobile phones in disseminating updates to members.

To cap, it could be inferred that more of ICT is manifesting at the primary Tier as indicated by the tables and charts. Also, far from relying on Mainstream technologies (such as computers), the infusion of emerging ICT channel to Cooperatives is traceable to mobile telephone. That is the direction. The portability and 'multi-functionability' of the mobile phone is indicative of the pivot around which cooperative ICT solutions should be designed. It is cheaper and readily available. At least one can be found in every house. Same cannot be said of the Mainstream technologies (such as computers). With minimal training, the unlettered in western symbols can maneuver around it.

Willingness to use the alternative channel and the amount of trust reposed on it have been contributory factors to the amount of success recorded. As the band of willingness and trust in ICT increases, there will be increase usage across the tiers. The need to meet the dynamic needs of the mass of members should also challenge creativity to explore new frontiers in usage capability and identify appropriate mix for existing ICT elements available for use.

4.4 ASSESSMENT OF LEVEL OF MANUAL INTERVENTION AND THE ATTENDANT CHALLENGES IN THE INTERNAL OPERATIONS AND BUSINESS OF COOPERATIVES IN AFRICA

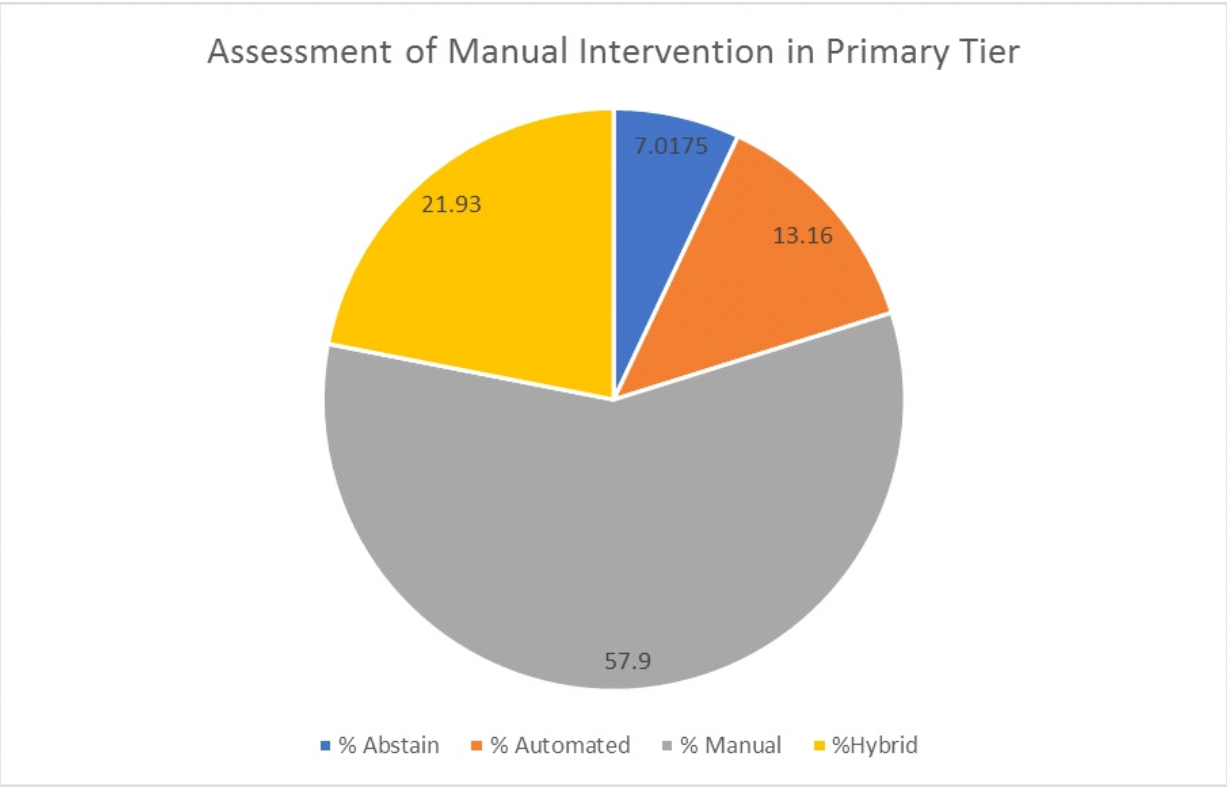
There is a preponderance of manual operation in the cooperative administration. Majority of Cooperative data are manual; locked away in aged ledgers; pathetically, they are not easily convertible, timely, when opportunity arise. The flipside of the manual mode of operations would have been the automation of major cooperative processes. Such automation reduces error rates, it increases transparency, lends to management efficiency, and allows for data-on-the-go (DOTGO).

Table 6: Assessment Of Manual Intervention

	Assessment of Manual Intervention			
	% Abstain	% Automated	% Manual	%Hybrid
	7.0175	13.16	57.90	21.93
	2.90	15.94	50.72	30.43
	0	0	55.56	44.44
	0	0	33.33	66.67

Across the tier of cooperatives, the highest degree of manual operational process is recorded at the primary tier. The regional federations did not fare better in the aspect of manual operations either. The eight (8) cooperative apexes have combined some measure of automation and manual operation at 66.67%. This has considerably whittled their reliance on manual administrations and operations to 33.33 percent.

Chart 6: Assessment of Manual Intervention in Primary Tier





If the band of manual operations expands at the expense of data and process automation it will result in disgruntled members, it will limit membership growth because of members disenchantment with delayed (i.e. slow) service delivery, and likelihood of under-hand dealings promoted by lack of transparency and accountability. Inversely if the band of automation increases, it will tell positively on the cooperative brand. Speed of service, cost reduction overtime, management efficiency and transparency are some of the outcome of a contraction in the band of manual operations. The benefits far outweigh the demerits and provides a basis for making conscientious case for data and process automation.

4.5 EXAMINATION OF ICT SYSTEMS THAT ARE CURRENTLY USED BY COOPERATIVES AND PURPOSE

African Cooperatives are not new to ICT. However, the degree of exposure differs with the settings, infrastructural availability, cost of ICT, computer literacy, and the structure of the cooperative added to the nature of the cooperative's business, among others. While generally, ICT uptake is low in cooperative enterprise across the region, comparatively, ICT uptake is more prominent in the urban-city center more than the rurality and hinterlands. The reasons for this are obvious.

Nature of cooperative engagement requires that records be kept for various reasons. These reasons include:

- (a) to Prepare financial statement
- (b) for planning
- (c) regulatory compliance
- (d) record keeping
- (e) business growth monitoring
- (f) Audit Purposes

Overall, ICT gears towards process automation. Essentially, ICT increases the band of process automation and reduces the band of manual intervention. Among African cooperatives ICT is still at its infancy.

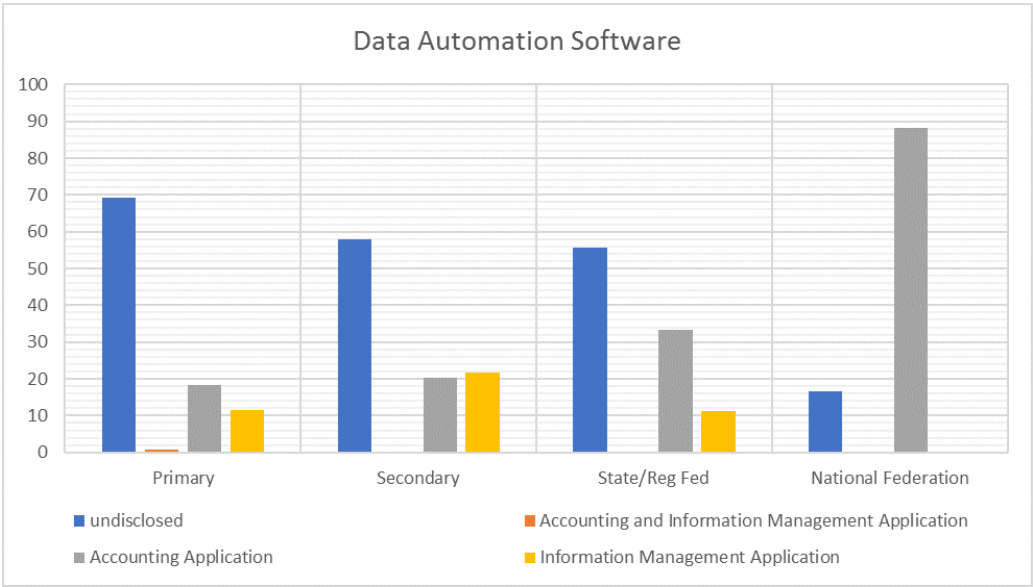
Chart 7 below represents the type of application software deployed for use across the cooperative Tiers where it is professed that both "Manual" and "Automated" transaction take place. About 69.3% at primary Tier, 58% at Union/Secondary Tier, 55.55% at State/Regional Federations and 16.66% at National Federation Tier could not disclose the type of Automation solution that is used in their cooperatives either because they do not know, or likely because they do not use one.

Importance and centrality of numeric computation is emphasized in cooperatives across the Tiers considering the index of exclusive reliance on Accounting Applications. One of the downside of Accounting Applications is the inability to meet other non-numeric needs in the cooperative administration. 18.4%, 20.3%, 33.33% and 88.33% respectively in primary, secondary/union and National Federations, respectively, indicated absolute dependence on Accounting Application.

A paltry 11.4%, 21.7% and 11.11% for primary, secondary and State or Reginal Federation, respectively use Information Management Application.

If the transitional curve moves to type, a proliferation of Information Management Application system will be a demonstration of ICT entrenchment among African Cooperative, ultimately.

Chart 7: Assessment of Data Automation Software



In conclusion, more cooperatives practice the manual type of operations.

This explains that African Cooperatives are yet to adopt full automation of their processes. It is also an indication that the available ICT tools in Cooperative have not been sufficiently sweated for desired result. While examining the prevailing ICT systems currently used and the purpose for their use, it was observed that most of the cooperatives accept basic utilities available. Most of the Cooperatives which practice mediated operations as opposed to manual operations use Accounting Application. While the use of Accounting Application alone may not be sufficiently robust to meet the rigors of a medium or large-size cooperative, bespoke information management application conceived and developed for cooperative systems will go a long way in alleviating administrative challenges and strengthen the fabrics of transparency and accountability. Many Cooperatives in the primary category indicated that they found open-source ICT useful in sharing information.

4.6 IDENTIFICATION OF BARRIERS TO UPTAKE OF TECHNOLOGIES BY COOPERATIVES; CRITICAL PATHWAYS & THE IMPEDIMENTS

Across the regions, ICT utilization is still relatively low in the cooperative sector of the various economies. In the absence of dedicated core cooperative application, what obtains is application of fringe ICT toolkits. When these and generic computer applications are appropriately blended creatively, they could accomplish appreciable result which output far outweighs the best of manual operations and process.

Below are some impediments quoted from the field research:

1. Lack of Airtime, Bandwidth and Internet Due to remoteness
2. Lack of awareness on ICT benefits and how to use it
3. Members do not have smart phone.
4. Our cooperative, Sunrays, have very few members with access to smart phones or computers. Though we are interested in having these items, we cannot afford to buy them. Other members just lack knowledge on the importance of phones and computers because we constitute elderly and child members (whose parents have died) as well.
5. We are all in the same office
6. We are not many, and email is the preferred option for record purposes

At the Primary Tier, the following barriers to the adoption of workable ICT platform were identified. 6.1% indicated "Inability to identify ICT relevance", 18.4% stated that "Lack of Awareness of Potential Benefits" is a barrier to their adoption of ICT for their cooperative use. 23.7% mentioned "lack of ICT knowledge, technology expertise and implementation techniques" while 35.1% ticked "perceived cost and, or lack of financial resources". Amongst other barriers stated by some of the respondents in the table tagged "Others" are; Inability to identify very suitable ICT platform from vendors, Not too strong interest of principal officers etc.

At the Secondary/Union Tier, the following barriers to the adoption of workable ICT platform were identified. 17.4% stated "Inability to identify ICT relevance", 33.3% stated that "Lack of Awareness of Potential Benefits" is a barrier to their adoption of ICT for their cooperative use. 34.8% said "lack of ICT knowledge, technology expertise and implementation techniques" while 43.5% pointed at "perceived cost and, or lack of financial resources".

At the State/Regional Federation Tier, the following barriers to the adoption of workable ICT platform were identified. 16.7% stated that "Lack of Awareness of Potential Benefits" is a barrier to their adoption of ICT for their cooperative use. 14.3% said "lack of ICT knowledge, technology expertise and implementation techniques"; while 7.1% volunteered that "perceived cost and, or lack of financial resources".

At the National Federation/Country Apex Tier, the following barriers to the adoption of workable ICT platform were given. 16.7% stated that "Lack of Awareness of Potential Benefits" is a barrier to their adoption of ICT for their cooperative use. 16.7% stated that "lack of ICT knowledge, technology expertise and implementation techniques" while 50% ticked "perceived cost and, or lack of financial resources".

At the Ministry/National Cooperative Department level, "perceived cost and, or lack of financial resources" was prominent at 16.7%

Other barriers identified by respondents include:

1. Inability of the staff to adapt

2. Inability to identify very suitable ICT platform from vendors
3. Unavailability of Accountant.
4. Not too strong interest of principal officers
5. Resistance to change.
6. Comparative low-level of literacy
7. Resource intensive nature of data collection/data gathering
8. low computer skills of members and officials
9. Prevalence of manual operations and low computerization of the cooperative process
10. Limited leadership will to go all the way in cooperative record automation

Added to the fore-going field-quoted inhibitors of ICT are:

Availability:

Availability is 2-tiered. Service providers and infrastructure availability versus revenue projection determined by volume of subscribers/population density dictates availability of web-based and internet services.

The other is availability of alternatives e.g. stand-alone applications which are computer-based; less internet facility. Absence of alternative limits the user's access to ICT experience.

Environmental Factors:

(Socio, regulatory and political): Social approval or distrust of ICT versus Manual system will affect usage. Absence or lax regulatory directive on the use of ICT and corporate governance limits the necessity to adopt ICT and by extension, the utilization. Policy direction, existing competition among providers, high cost and/or availability of suitable ICT, in particular the availability of affordable support are other restrictions on utilization of ICT.

4.7 IDENTIFICATION OF CHALLENGES FACED IN IN THE DAILY OPERATION OF COOPERATIVE BUSINESS

There are several challenges facing the cooperative business across Africa. Both the members and cooperative administrators alike have several issues to contend with on a daily basis.

Some of the identifiable challenges are as enumerated in the table below;

Member

- Inability to remotely initiate requests online real-time. E.g. (Loan, contributions, agro-input e.g. fertilizers, seeds, etc)
- Inaccessible online real-time balances to Members at their homes/work places/offices
- Delayed request(s) processing from the secretariat
- Unavailable activity-based SMS alert/Notifiers (ABSA)
- Manual member record keeping / data management
- High traffic at cooperative secretariat, as a result of manual enquiry, and high manual attendance
- Unavailability of Authorizers'

Admin / Manager

Characterized by high turn-around-time in

- Request processing,
- Request Authorization
- Stock and inventory control
- Auto Tracking Re-order Level of Various Consumables relative to Cooperative Type
- Unavailability of Authorizers

Secretariat:

- Overworked centre
- Delayed request processing
- Delayed Loan processing
- Unavailability of Authorizers'

Administration's Challenges

From the Administrator's stand point, it can be noted that key officers in the cooperatives who have been saddled with various responsibilities, are often faced with several challenges which ranges from delayed processing of requests, delayed approval/authorization/validation, rejection of requests, Rigorous manual enquiries, report generations etc.

These challenges often do cause long queue of requests and tasks awaiting execution as well as elongating the waiting periods of members before they get served. Administrators also tend to get exhausted with work overload while this counter-productive in the long run would result into inefficiency and non-performance on their parts.

Members' Challenges

Cooperative members also often do encounter several challenges during the process of getting served by their respective cooperatives. Some of these challenges include; Problems of initiating requests, delayed request processing, inability to access balances, delay in update of members' postings, etc.

Where the processes of cooperatives are being manually carried out, there is usually a high tendency that the pace of delivery of services would be slowed down, especially in cooperatives with larger membership sizes.

Members who need to move from one location to another before they can make enquiries about their interests in a cooperative society are also likely to face the challenges of having to make back-and-forth trips to the cooperative secretariats before they can get served.

4.8 LEVEL OF COMPUTER LITERACY OF COOPERATIVE MEMBERS WITHIN ALLIANCE AFRICA'S SPHERE OF INFLUENCE

Majority of cooperative members in the eight African countries where this study is conducted are on a proficiency range of between 11 & 20%. There are instances too, where none of cooperative members is found to have basic knowledge of computer operations. Such environment elicits 'compu-phobic' reactions, whenever mention is made of main stream technologies such as Computer. Concurrently, there are near-elitist scenarios where computer savvy members have computer literacy grasp ranging at 81% and above. These are far in-between.

Table 7: Computer Literacy Among Members

Computer Literacy Among Members								
Primary	Country	% Abstain	0.01-10%	11-20%	21-40%	41-60%	61-80%	81% & Above
	DR Congo	0.00	0.00	1.75	1.75	0.00	0.00	0.00
	Kenya	0.00	0.00	0.88	0.00	5.26	3.86	6.14
	Niger	7.02	2.63	6.14	0.88	0.88	0.00	0.00
	Nigeria	0.00	0.00	0.88	1.75	2.63	2.89	8.77
	Rwanda	1.75	0.00	2.63	0.00	1.75	0.00	0.88
	South Africa	0.00	0.00	6.14	0.88	0.00	0.96	0.88
	Tanzania	0.00	0.00	4.39	3.51	1.75	0.96	2.63
	Zimbabwe	0.88		6.14	6.14	3.51	0.00	0.88
	Total	9.65	2.63	28.95	14.91	15.00	8.68	20.18
Union	Country	% Abstain	0.01-10%	11-20%	21-40%	41-60%	61-80%	81% & Above
	DR Congo	0.00	0.00	0.00	0.00	0.00	1.45	0.00
	Kenya	0.00	0.00	0.00	0.00	0.00	0.00	1.45
	Niger	4.35	1.45	17.39	2.90	0.00	0.00	0.00
	Nigeria	1.45	0.00	0.00	2.90	0.00	1.45	0.00
	Rwanda	1.45	0.00	4.35	0.00	0.00	0.00	0.00
	South Africa	0.00	0.00	7.25	11.59	5.80	1.45	0.00
	Tanzania	1.45	0.00	8.70	2.90	8.70	1.45	2.90
	Zimbabwe	0.00	0.00	4.35	2.90	0.00	0.00	0.00
	Total	8.70	1.45	42.03	23.19	14.49	5.80	4.35

Table 7 above shows the band of computer Literacy level among members.

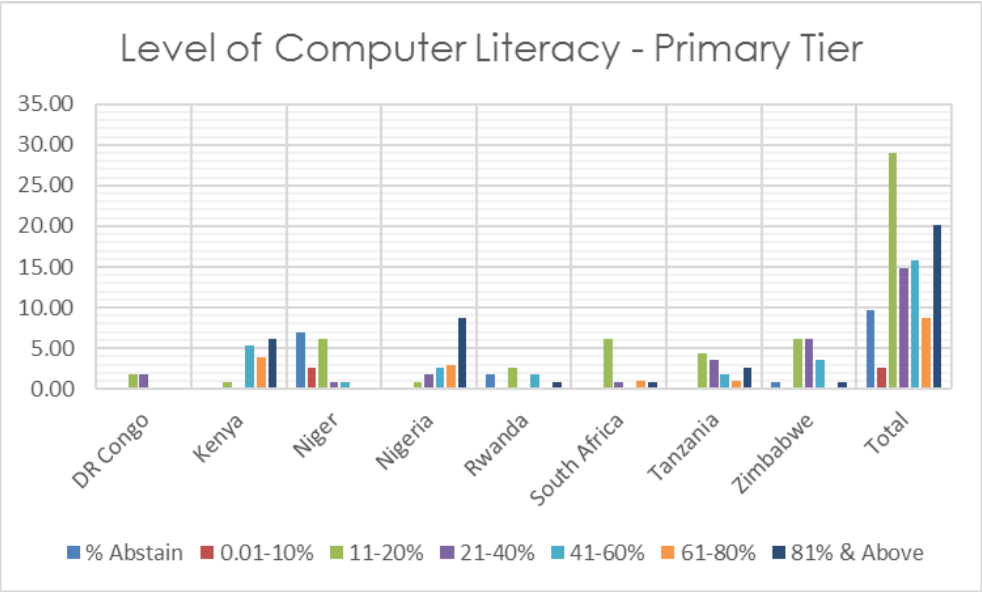
Doing a Country Computer Literacy Analysis, 81% & above is the expected peak performance (EPP) for this study. In the Primary Tier, Cooperators from Nigeria lead at 8.8%, Followed by Kenya at 6.1. Next comes Tanzania at 2.6%.

Rwanda, South Africa and Zimbabwe are tied on points at 0.9% at the high-end of computer literacy.

Scaling southward to 61-80% Computer Literacy, Kenya has the most cooperators in the band at 3.9%. Next is Nigeria at 2.9%. Cooperators from South Africa and Tanzania are tied on points in this band at 1.0%, each.

Going further South of the Computer literacy band i.e. band 41-60%, Kenya cooperators lead the band at 5.3%, followed by Zimbabwe at 3.5%. Nigeria is Next in the band at 2.6%. Rwanda and Tanzania tied-on-points at 1.8%. Niger records 0.9% Computer literacy on band 41-60%.

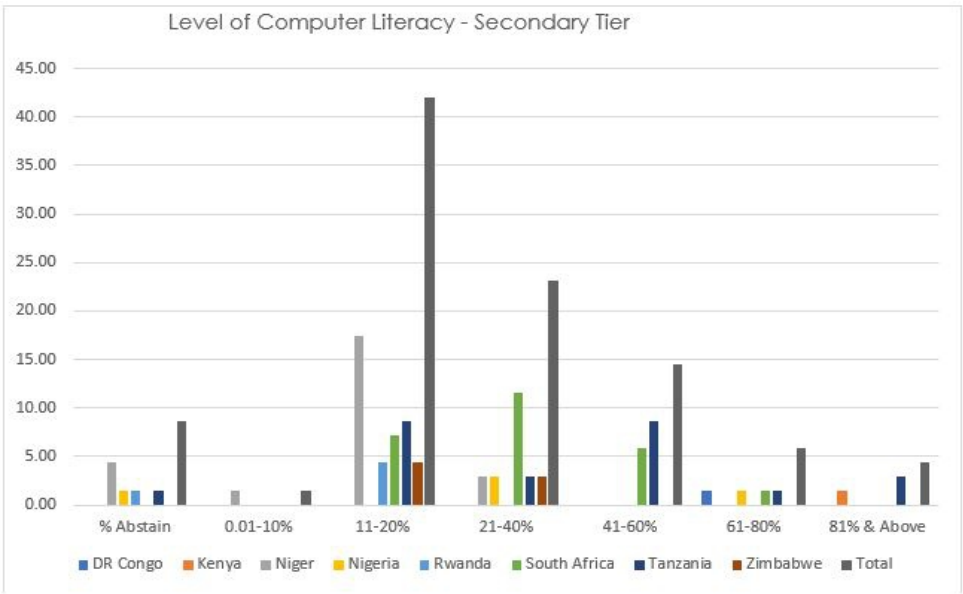
At band 21-40% Computer Literacy Level, Zimbabwe cooperators lead on Computer Literacy level at 6.1%, followed by Tanzania at 3.5. DR Congo and Nigeria Tie-on-point at 1.8%. Niger and South Africa also tied-on-point at 0.9%. Niger, South Africa and Zimbabwe tie-on-point and lead Computer Literacy Band 11-20% at 6.1%. Tanzania follows at 4.4%, Rwanda is next at 2.6%. DR Congo at 1.8%. Kenya and Nigeria also occupy the band at 0,9%. It is interesting to note that all countries in the study group feature at band 11-20%. See table 7 above and Chart 8 below for details. Chart 8: Level of Computer Literacy – Primary Tier



Level of Computer Literacy-Secondary Tier

At the Union/Secondary Tier of Cooperative, Tanzania leads the computer literacy Band- 81% & above at 2.9%. Kenya follows at 1.4%. DR Congo, Nigeria, South Africa and Tanzania tied-on-points in the Band 61-80% at 1.4% apiece. 41%-60% band is led by Tanzania at 8.7%, followed by South Africa at 5.8%. In the 21%-40% band, South Africa leads the band at 11.6%, followed by 4 countries tied-on-points; namely Niger, Nigeria, Tanzania and Zimbabwe at 2.9% apiece. Typical of the mass band, band 11%-20% has the band leader in Niger at 17.4%, followed by Tanzania at 8.7%. South Africa records 7.2% presence in the band. Zimbabwe and Rwanda tied-on-point at 4.3%. Please see Chart 9 for details.

Chart 9: Level of Computer Literacy – Secondary Tier



To cap, 'compu-phobic' considerations and low computer literacy need not hinder the necessary transition to data automation via cooperative ICT platform. One, the degree of need and use of cooperative ICT platform by user may not be as intensive as that of the secretariat Administrator. Besides, appropriate cooperative ICT platform could be scalable to the degree that it can accommodate various level of computer proficiency (having seen that the majority, likely fall in band 11% -20%) . ICT has been scaled into portable medium. The possession and use of android phones reflects the scalability. Such portable mediums as Android and Smart phones means cumbersome gadgets and hardware are no longer sine-qua-non to engaging in ICT on the go.

4.9. CODAS: SPECIFIC PATH TO IMPLEMENTATION ACROSS THE CONTINENT

One of the bold attempts at record automation in Africa was the implementation of CODAS. The Codas engagement was a testimonial of paradigm shift from erstwhile cooperative data complacency that confounded measurement, comparison and benchmark for cooperative sectoral growth and the inability to determine number of registered cooperatives.

The journey to data automation started. CODAS deployed in some African countries; namely: The Kingdom of Lesotho, Botswana, Kingdom of Swaziland, Nigeria, Uganda and Tanzania. It was designed to aid cooperative data analysis, monitor cooperatives via enhanced reporting.

The CODAS experience spotlighted contentious issues that future attempts at automating cooperative records in the continent would face. These include:

- Resistance to change and the attendant cloak of secrecy which voided transparency and accountability.
- Comparative low-level of literacy.
- Resource intensive nature of data collection/data gathering.
- Low computer skills of members and officials.



- Prevalence of manual operations and low computerization of the cooperative process.
- Sheer size of cooperative society in dormancy
- Resource-intensive Data collection
- Knowledge gap in cooperative matters among members.
- Limited political will to go all the way in cooperative record automation.
- Illegal registration; responsible for multiple-incidence of registration etc.
- Prebendalism and tendency for nepotism by dominant influencers in the movement.
- Limited budget allocation.

Post-Codas gap analysis activities saw necessary attempts at eliciting general acceptance from stakeholders and the cooperative movement in respective countries of deployment. For instance, in Nigeria, the exercise at Stakeholders acceptance included rallying-campaign for sensitization. The campaign was multi-level. The Federal Ministry of Agriculture and Rural Development was the supervising Ministry which superintend the Federal Department of Cooperative and by extension the federal presence, states on the one hand, and the Cooperative Federation on the other, all coordinated by the office of the Federal director of Cooperatives.

At the State (government's) side of the stakeholders were the Federal Director of Cooperative (FDC), thirty-five (35) State Directors of Cooperatives, National Bureau of Statistics and Cooperative Colleges; while cooperative federation, sub apexes, union and primaries rallied.

A major first level challenge was encountered. Some of the participants at the 'train-the-trainers' session failed at imparting to others as designed.

Going by the implementation structure at the national level, selected personnel were trained in Data capturing. Cooperative staff were made CODAS desk officer. Field officers were the staff of the Federal Department of Cooperative in each state. The Cooperative movement had representative in each state and finally, a staff from the federal department of Agriculture resident in every state.

The objective of the foregoing structure is to achieve collaboration between federal, states movement and the Agriculture Department. The objective at this level aimed at achieving a holistic diffusion on a national scale.

At the state (sub-national) level, an officer from each of the 35 States' Departments of Cooperative was made the Codas Desk Officer. Area Field Officers constituted the next level. They were trained in encoding into the Codas application.

While at the training, the Desk Officer and the Area Officers, each, were required to encode (input) at least 50 questionnaires, daily before they returned to their respective states of Origin.

A 13-man team was selected from the aggregate of Desk-officers and Area Field Officers. That team of graduated 'trainee-turned-trainers' subsequently formed the cluster of administrative super-users. The thirteen super-users were categorized into 4 zones; based on a geographical delineation of the country into adjoining states by proximity, attached to each super user.

The functional assignment of the 13 (thirteen) super-users among others were to take up resolution and Application maintenance. Specifically, they were taught to support the zone.

Two (2) of the super users were Federal Department of Cooperative staff. The responsibilities of the 2 super-users who were staff of the Federal Department included Sensitization, provision of Enumeration tools, training of the enumerators.

Each of the 35 States of the country had the responsibility of carrying out Publicity and Awareness Campaign for Data collection.

Other functional Assignment that would be done at state levels, going forward included, enumeration and encoding.

At that stage, the States were aware of their deliverable for project success.

Then, another level of challenge emerged.

Post training, some of the participants, the trainees-turn-trainers could not convince their principal. It was either the participant-turned-trainer could not convince the State Director of Cooperative, or that the Director could not convince the Permanent Secretary, or the Permanent Secretary couldn't convince the Commissioner in supervising the Ministry, or it was the Commissioner that was unable to make the Governor/Government see the need and importance of the Cooperative Record Automation Campaign (CRAC).

Post-training which was coordinated by The Federal Department of Cooperative, some states failed to conduct the required training for fresh trainees. Comparatively, very few conducted and replicated training in the states. It wasn't smooth sailing for those who did either. There were instances of trainer's bias. The hypodermic is suspended in content in those cases.

Next, whereas, ideally a key official may be the respondent (President, Treasurer, Secretary or Manager). The questionnaires were designed and allowed for trained enumerator to fill, relying on data from the cooperative societies. However, expectation of Political benefits that were speculated for post-enumeration caused incidence of data inflation to play out and thwarted the intended outcome.

There were fallouts from State's inability to meet their 'awareness creation' obligations. The development merely expanded the cooperative society's-oriented challenges. Cooperatives in such states consequently were not aware of the Cooperative data gathering exercise. Neither were they made privy to the benefits inherent in automated record-keeping. It was not surprising that they were hesitant to support the cooperative data gathering campaign for success.

Related still, there were instances where the inability of Cooperative officers to decipher the direct pecuniary benefits; and after discerning that no 'personal-benefits' accrued to them, the discovery only succeeded in eliciting lukewarm attitude, at best.

A major limitation and inhibitor of cooperative data/record automation is the dearth of proper books and records at the society level. As a result, while CODAS was used in capturing cooperative data in some countries, some vital information needed for questionnaire completion were not available. Consequently, distortions occurred.

There were premises on which enumerators hinged erstwhile data/record automation exercise failure: lack of logistics for enumerators, such as transportation, and lunch, and absence of motivation allowance for encoders were some reasons adduced. The result was skeletal, incomplete forms. By design, insufficient records won't progress to validation stage, in the CODAS System.

Similarly, the encoding exercise was done at convenient pace, usually it combined and tended to clash with the other duties assigned. Perhaps having dedicated hands, whose primary and core duty was data encoding may have been the solution, unlike the scenario where daily expected data entry target were not met. The consequence, among others, was inaccurate information, and fictitious data which got fed into the system. Years after, most of the trained personnel have exited the system; it had adverse effect on continuity.

Hoarding of training experience and none compliance with hardware, software maintenance requirement resulted in crashed system, in some cases. These created systemic challenges because, inappropriate hand-over, for instance affected efficiency negatively.

4.9.1 SPECIFIC RECOMMENDATIONS FOR IMPROVEMENT ON CODAS

Recommendations for improvement on CODAS will be tripodal; namely People-oriented recommendations, Process-oriented recommendations and Technology-oriented recommendations.

The terrain in Africa varies. Development is uneven. A larger mass of the people are not computer savvy.

These differences impact on the citing of ICT infrastructure, quality of ICT provision, reception of ICT by users, etc.

Sophisticated and complex ICT systems in the city centers may reflect status, and those features that tend to confer status may often be the selling point. Whereas in place of sophistication and complexity, an average ICT user in the rural area and hinterland will prefer just the basic, near-austere system that will meet the need; no fripperies. This equally reflects in frugal spending patterns.

Irrespective of the location in Africa, extensive Awareness must be created for any ICT implementation. The awareness campaign becomes an avenue for user to become aware of Cooperative ICT solutions. Every stakeholder must be carried along. All avenues must be explored to get to members; during education, meetings/training, memos and circulars, religious sessions, general meetings, Internet Social Media, Meeting, Newspaper Publications, Cooperative websites (for those who have), WhatsApp. A hybrid of these approaches will appeal to members in either side of the socio-economic and I.T. divide.

Either the Movement or the States may approach the Electronic media (radio), and, or print media to elicit support as part of Corporate Social Responsibility. It is important to engage ICT Users in the awareness stage.

The Interest of members must be guided by providing easily accessible information on the genre of ICT solution. There must be various sources of information that members can discover and review; tutorial or instructional videos are examples.

The objective is to attract the innovators, early adopters and early majority. These will become brand ambassadors for the late majority and laggards.

On the process Side, Process Negotiation and Process Implementation are indispensable aspects that must be managed with future outcomes in view. Process negotiation finalized with, or through a government in power should not cause severing ties with a seemingly enfeeble Movement in every country by ICT vendors. Political system in the continent may sometimes be so fluid; 'soldier goes, soldier comes; the barracks alone endures'. The 'soldier' in this context, symbolizes the transient nature of political power, and political administration (even in democracies). Institutions, represented by 'barracks', endures; relatively. The wisdom lies in affinity to the Movement that can access the grass root.

Process implementation should be carried out in a way that beneficiaries can discern that such programme being implemented is indeed in their best interest. Where the benefit to them is not convincingly communicated, it's a matter of time, distortions of reality shall make nonsense of the I.C.T process implementation.

In the aspect of Technology, it is recommended that a new purpose-built Cooperative Platform be developed to accommodate the dynamics of the cooperative movement.

It is crucial to understand the strength and weaknesses of the environment where the users are located, this should be addressed in the design and delivery of appropriate ICT. Appropriate ICT should accommodate 'Feature' Phone and Smart phone as integral part of cooperative ICT, relative to where a cooperative member lives or works.

In addition to the client-server nature of CODAS as implemented. An appropriate I.T should have web-versions that could be accessed online real-time. This will match the explosions of ideas in the information technology space.

Concentration of admin privileges in the department of Cooperative, with few admin-gatekeepers, should be reviewed in favour of each cooperative primary, or Union, state Federation and National Federation independent administrative access. It is the aggregate of information that forms a country's cooperative data.

Resistance to change is 'normal'. This should be accommodated in the implementation plan. Of course, when people discern the beneficial nature of every change, they are won over.

Modern solutions are built with interface to achieve handshake with other applications. This should be a fitting addition to cooperative solutions in the continent.

On the strength of the foregoing, we recommend the development of Cooperative Resources Information Management Solution CRIMS, with functionality to interface with any standard application.

4.10 PROTOTYPE COOPERATIVE RESOURCES INFORMATION MANAGEMENT SOLUTION (CRIMS)

- Overview; CRIMS
- Project Goals
- High Level Architecture:
- Main Components
- Overview; CRIMS

Herein lies a guide for prototype Cooperative Resources Information Management Solution (CRIMS) development. CRIMS is a proposed platform to aid Cooperatives; Primary and Union and Regulators; Cooperative department and National Apex to effectively and efficiently manage data and information flows and processes.

Some of the key modules include the Membership Modules, Co-op Management Module, Accounting/Finance Module, Procurement and Reporting Module. All these modules will be brought together in a way that ensures several types of cooperatives can use the CRIMS regardless of their unique processes. The architecture will also be developed in a way to ensure easy integration with 3rd party systems as required.

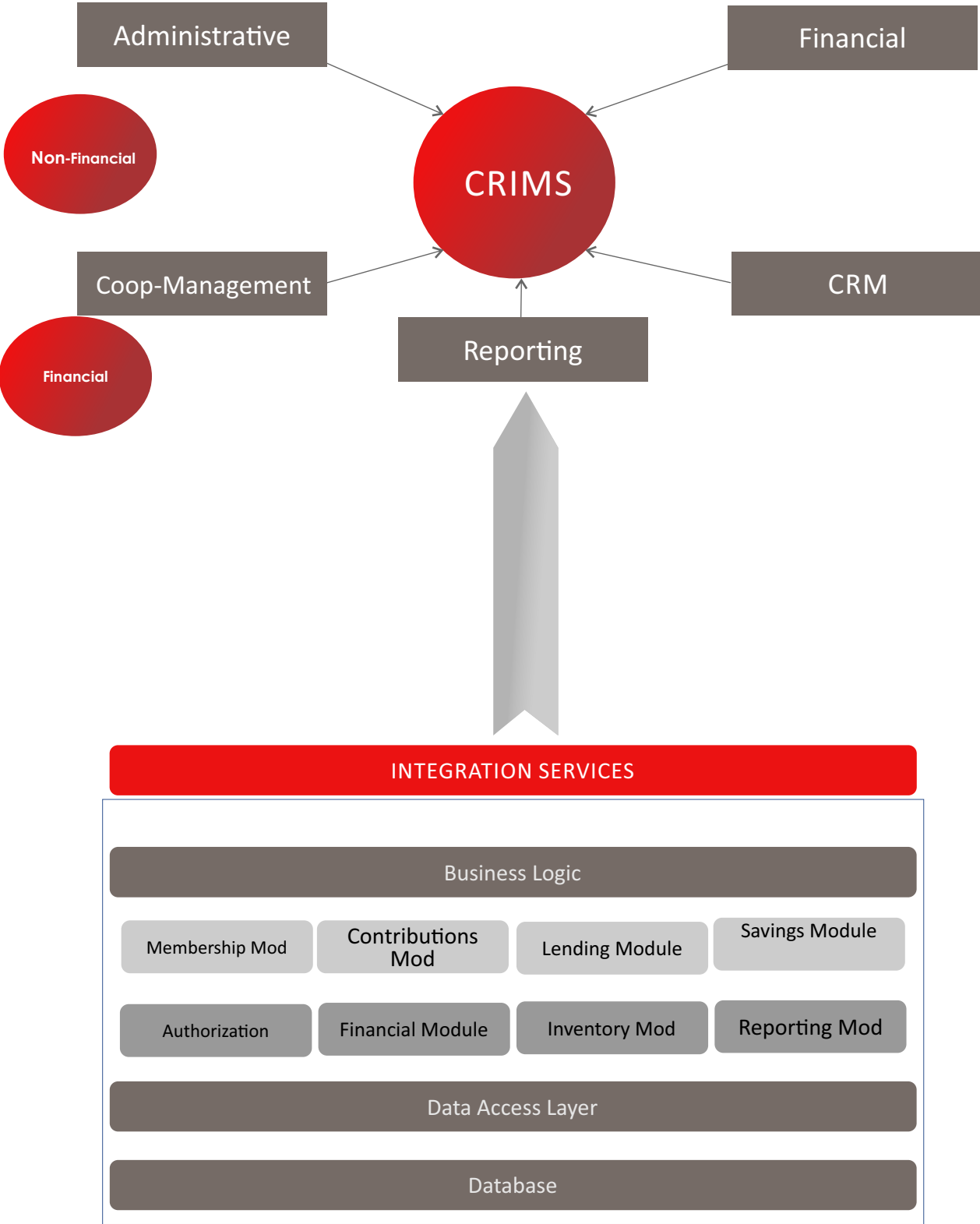
Project Goals

1. To develop a fully featured information system that can be used by all types of Cooperatives to manage data and aid internal processes.
2. To develop a saleable and extensible platform that can integrate seamlessly to other 3rd parties and manage data for millions of cooperative members.

The functionalities shall include but not limited to:

- Membership Management
- Co-op Management
- Financial Management
- Loan Management
- Savings Management
- Inventory management
- Reporting
- Authorization management

High Level Architecture:



MAIN COMPONENTS

- The components are not exhaustive. However, they capture the 'must-have' which are the main components.
- Membership Management Module**  
The Membership Module provides all functionality for maintaining the records of each Co-operative's members.
  - Authorization Module**  
The Authorization Module is responsible for the maintenance of users that can access the platform and management of permissions
  - Cooperative module**  
The Cooperative module provides functionality for managing several types of cooperatives, and personnel;
  - Financial Management module**  
The financial module provides functionality for tracking all payments, generating accounting statements and asset management.
  - Savings Management Module**  
The Savings module handles all functionality for creating, managing and processing savings for members.
  - External Integrations**  
There will always be a need to integrate with a variety of external services. This has been factored into the design by providing Web Services.  
  
The Web Services will provide methods for any 3rd party integration like the Ministry of Trade and Investment/Government Departments, CODAS etc.



4.11 Proposition for Management buy-in of the newly proposed platform within Africa

Based on the needs and gap identified on the field, research finding confirms dearth of appropriate Cooperative Solution.

Consequent upon this, we propose the implementation of one or a hybrid of the models stated below:

- 1. An implementation of the said solution in collaboration with Alliance Africa where the cost will be halved between both parties and consequent cost of maintenance will be shared.
- 2. Alliance Africa takes up the cost of development fully.
- 3. Development of an appropriate simple and scale-able solution; fully funded by Africa Prudential, in which Alliance Africa, country apexes and all other sub-apexes will earn commission for every user activated.

However, we recommend model 3, founded on the principle of comparative advantage. APR Plc has both the resources and capacities to implement from conceptualization to development, maintenance and annual improvement on the platform.

We recommend this model because relying on it would generate annual commission on every member signed-on across Africa Alliance for Africa and then other countries' apex, most of which are currently starved of fund.

The strong point of this model is that Alliance Africa does not bear outlay cost in development, improvement, and annual maintenance. Those resources would be better utilized in the area of core advantage of Alliance Africa, whereas, annual income is generated from all users, both new and renewal.

Meanwhile, we are open to further discussions to arrive at the option that better serves the intent of Alliance Africa.

4.12 Identifying Training Needs Which Will Be required to Roll Out the Developed Platform

Summary:

Responses elicited from respondents across various strata of the cooperative system underpins the importance of Training for a successful Cooperative solution adoption and utilization.

Respondent mentioned an array of training which include:

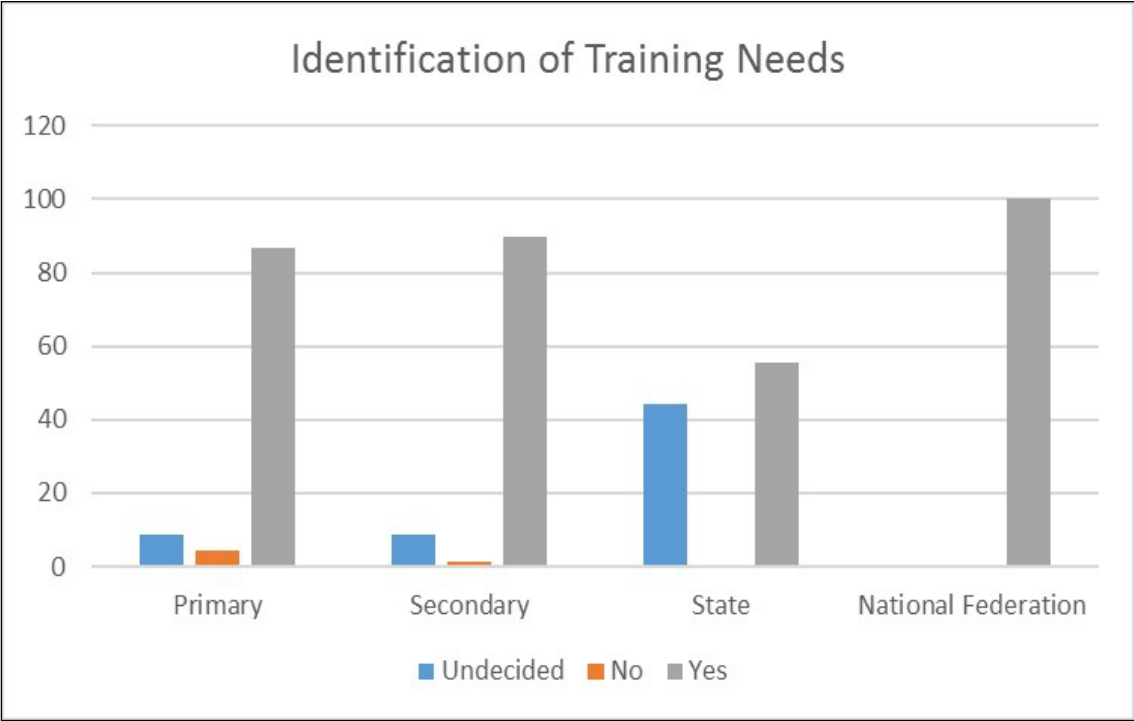
- 1. "Computer Appreciation training",
- 2. "Hardware vs software training",
- 3. "Mobile phones; Uses training",
- 4. Financial and accounting Training; and
- 5. database training.

Chart 10 below is a reflection of findings from the field on the need for training. The grey bars are indicative of aspect of training required. There is 86.84% training demand at the Primary Tier. Similarly, there is 89.85 training demand at the Union/Secondary Tier. The State/Regional Federation and National Federation also expressed interest in in various training at 55.55% and 100%, respectively.

In the primary Tier there are 8.77% 'undecided' , while 8.69% and 44.44 were undecided at secondary and State Tier.

Chart 10: Identification of Training Need Summation by Tiers

Chart 10: Identification of Training Need Summation by Tiers



While the high rate of training request may be indication of the users' self-doubt about ICT competency. It is important to note that, success or failure of any cooperative solution will depend largely on the members perception of their ability to use the platform.

Chart 11 below shows the training request by Cooperative Tiers. There are four requests documented for Primary Tier. The Fourth 'All the Above' training request encompasses Computer Appreciation Training, Hardware and Software Training, and Mobile phone and Uses Training. Similar Training Requests are put forward at Secondary/Union Tier and State/Regional Tiers. At the National Federation Tier, Training needs are identified at Mobile Phones and how to use them for cooperative purposes and "All the above" explained as the training request presented in primary and others. Please see chart 11 for details

Chart 11: Nature of Training Needs by Cooperative Tiers

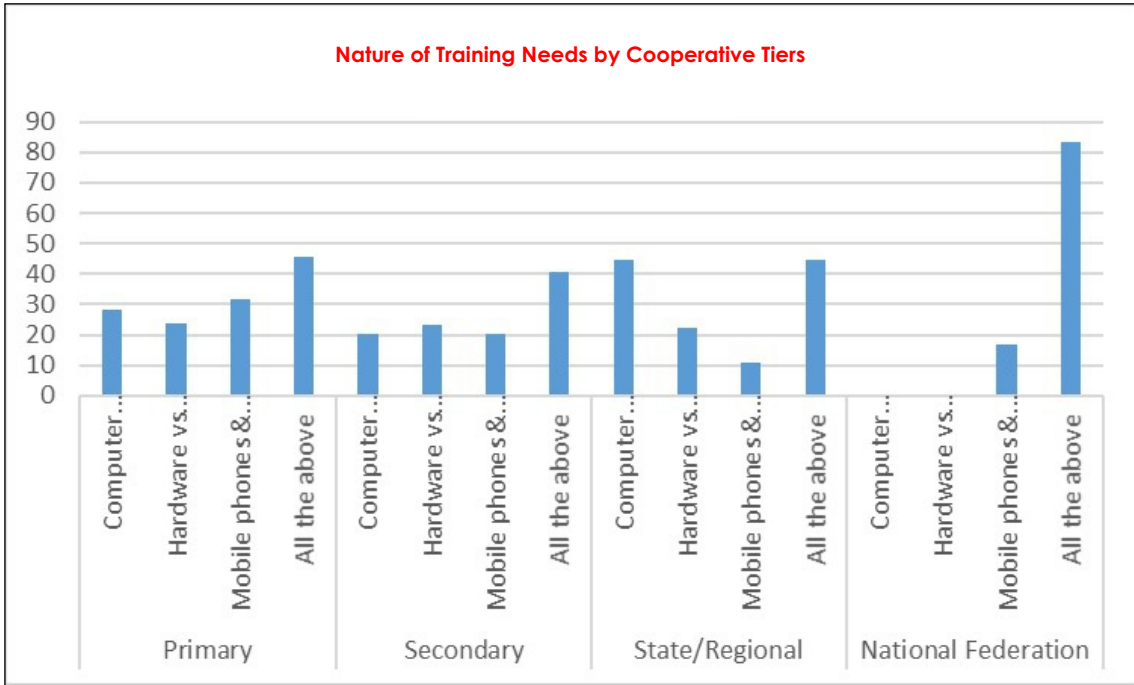


Chart 11 represents request for specific training which is deemed important by members to aid the adoption of workable ICT. "Computer Appreciation training". "Hardware vs software training", "Mobile phones; Uses training", and "All of the above"

Identified within the array of 'Other' Training Needs are:

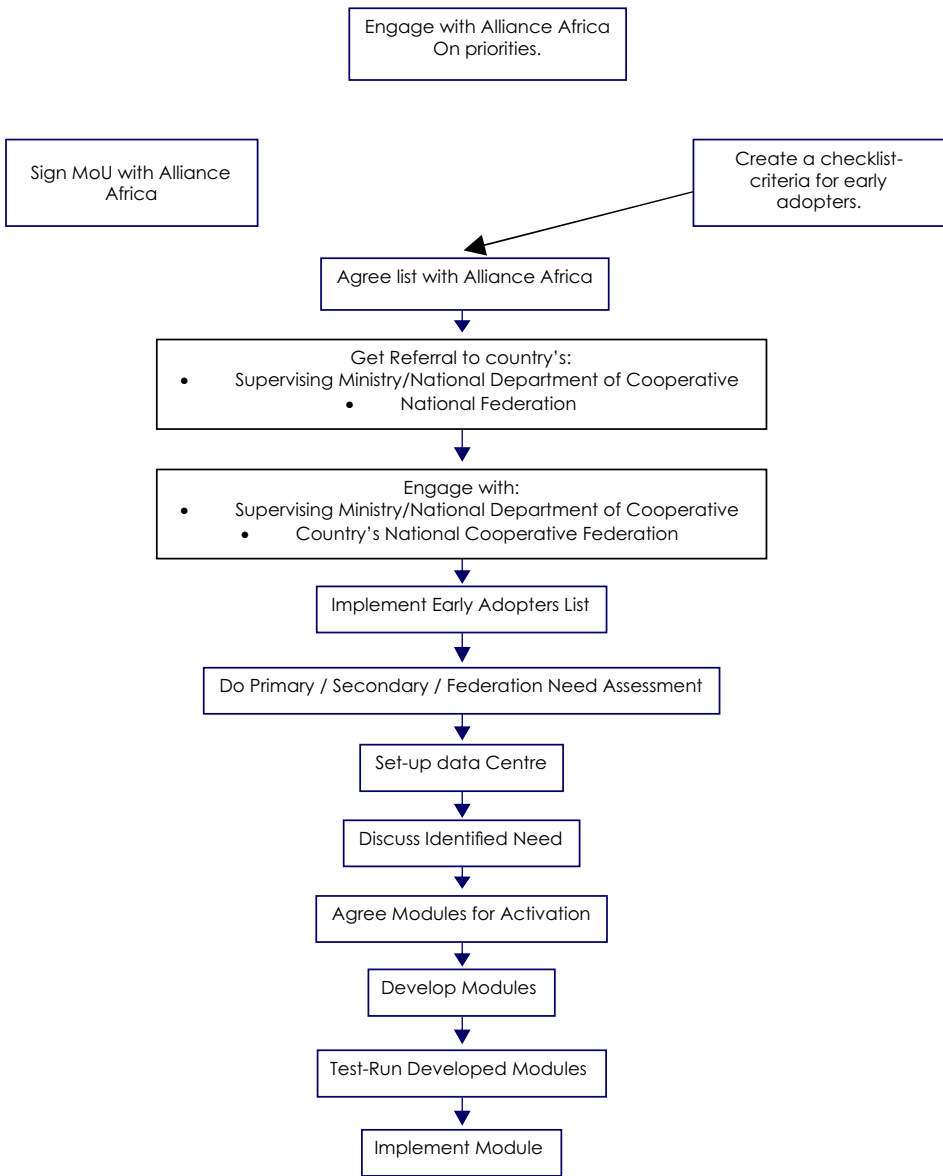
- Database Training
- Financial Accounting Training

Across the Tiers, it was identified that Training is essential for successful ICT adoption.

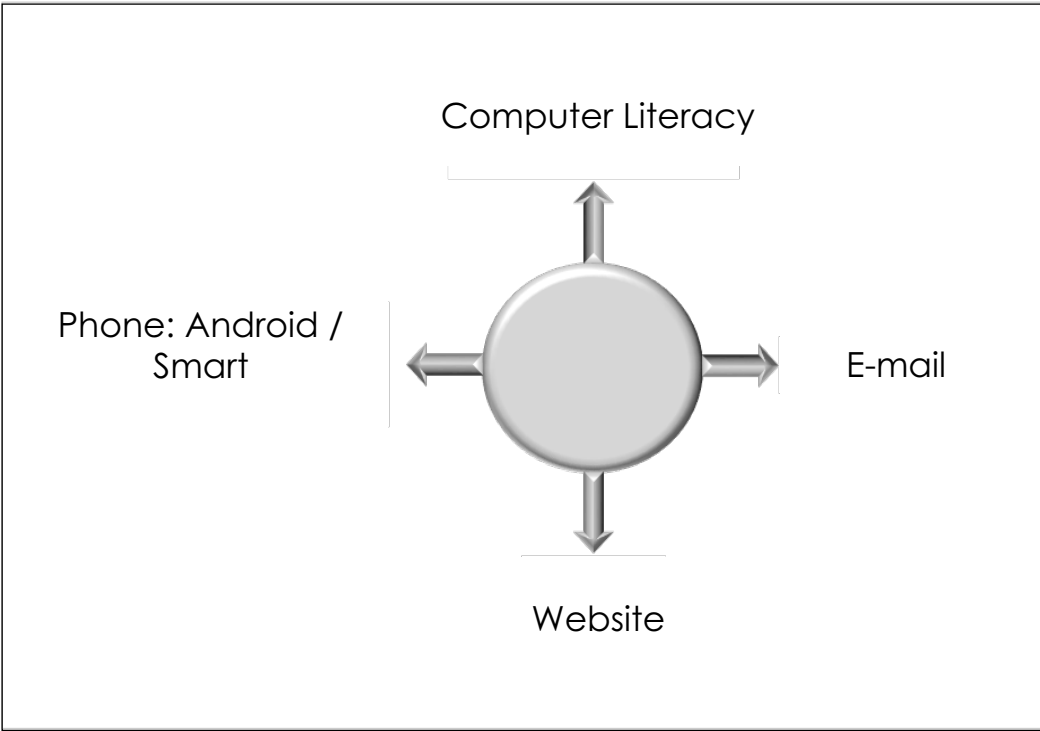
It is pertinent to conclude that training shall facilitate knowledge and adoption of a usable ICT. The inference from the field responses is that a sizeable fraction of African cooperators recognize the importance of Information Communication Technology with regard to management of cooperative data and records.

In contrast, it is hoped that over time, the category of respondents who are undecided on request for any special training that can give knowledge on a usable ICT and also aid its adoption will come on board to appreciate ICT. But before this will happen, more awareness must have been created in the continent.

4.13 STEPS TO BE FOLLOWED FOR THE ADOPTION & ESTABLISHMENT OF PLATFORM CO-OPERATIVISM TO ENSURE MEMBER OWNERSHIP



4.14 IMMEDIATEISSUESINICTUPTAKE



Measured on a continuum, majority of cooperative members in the eight African countries where this study is conducted are on a proficiency range of between 11 & 20%. There are instances too, where none of cooperative members is found to have basic knowledge of computer operations. In such scenarios any talk of ICT elicits 'compu-phobic' reactions. Although there are near-elitist scenarios where computer savvy members have computer literacy ranging at 81% and above. These are far in-between. The low computer literacy speaks to one of the reasons why most cooperatives do not automate their records.

ICT has been scaled into portable medium. The possession and use of android phones reflects the scalability. Such portable mediums as Android and Smart phones means cumbersome gadgets and hardware are no longer necessary to engaging in ICT-on-the-go. Although there are 2 categories of phones found among members; basic and feature phones. The android phones and smart phones share similarities. Although both are internet-compliant, Smart phones hold so many advantages over the android phone. There relevance lies in the portable computer-held characteristics. Whereas the basic phones are only suited to voice calls and text messaging, an appreciable number of members currently use android and smart phones. The low literacy level among some of these cooperatives and their members account for the low level of smart phone use which also inversely reflects in low exposure to the use of ICT among cooperative members across the study coverage area. Because an appreciable number of cooperatives and members (more than 40%) are either using android or/and smart phones, these ones present a veritable catchment for ICT uptake in Africa

More than fifty-four percent (54%) across the cooperative tier are currently set-up on electronic mails (e-mails). Whereas a sizeable number of cooperatives across the tiers still have to catch-up on e-mail, the size of e-mail account currently set-up could be an indication of readiness for partaking in the ICT space. Apart from being one of the unique identifiers on I.T platforms, it is a minimum gateway to e-interactions.

Although having a website is not mandatory, it is a necessary tool for cooperatives to showcase their wares and surplus productions to potential markets outside the immediate environments of the cooperative. This is one of several boons of ICT which matches demand to supply and cooperative suppliers outside their environment. Cooperative societies across in the study group across the continent have low presence on the world-wide web and ownership of website page.

In tow are Nigeria and Tanzania. Cooperatives in the secondary Tier are more visible in South Africa than any other country in the study group, followed by Nigeria. While DR Congo, Kenya, Nigeria and Tanzania tied on points. Rwanda leads the category of cooperative website for Province/regional federations followed by Nigeria. Country apex at Kenya, South Africa and Tanzania all have web presence.

The result here is reflection of the low-level projection of the socio-cultural and economic activities of the respective cooperatives beyond their immediate vicinity. This should be a cause for concern. An enlightenment campaign on the importance of ICT tools may be required in the cooperative sector. Please see table 9.

Table 8: Cooperative Websites

			Cooperative website		
			% Abstain	% No	% Yes
Primary	3.Country	D.R. Congo	0.00	2.63	0.88
		Kenya	0.00	3.51	12.28
		Niger	0.00	17.54	0.00
		Nigeria	1.75	10.53	4.39
		Rwanda	0.00	6.14	0.88
		South Africa	0.00	8.77	0.00
		Tanzania	0.88	7.89	4.39
		Zimbabwe	0.00	17.54	0.00
	Total		2.63	74.56	22.81
Secondary					
			% Abstain	% No	% Yes
	3.Country	DR Congo	0.00	0.00	1.45
		Kenya	0.00	0.00	1.45
		Niger	0.00	26.09	0.00
		Nigeria	1.45	2.90	1.45
		Rwanda	1.45	4.35	0.00
		South Africa	5.80	7.25	13.04
		Tanzania	0.00	24.64	1.45
Zimbabwe		0.00	7.25	0.00	
Total		8.70	72.46	18.84	
State/ Province / Regional Federations					
			% Abstain	% No	% Yes
	3.Country	Niger	0	33.33	33.33
		Nigeria	0	0.00	11.11
		Rwanda	0	22.22	0.00
Total		0	55.56	44.44	
National Federation/ Country Apex					
			% Abstain	% No	% Yes
	3.Country	Kenya	0.00	0.00	16.67
		Nigeria	0.00	16.67	0.00
		Rwanda	16.67	0.00	0.00
		South Africa	0.00	0.00	16.67
		Tanzania	0.00	0.00	16.67
		Zimbabwe	0.00	16.67	0.00
Total		16.67	33.33	50.00	

4.15 COOPERATIVE AFFILIATION:

Affiliation is the structural relationship that exists between two or more cooperatives; It could be lateral relationship, but mostly Cooperative affiliation is defined by vertical relationship between say a primary (being the first tier) and secondary. It could also be relationship between Union (synonymously used with Secondary) and a State, Province or Regional Federation; or the National Federation or country Apex.

The elements of affiliation resonate in the study. It is important that vertical affiliation be emphasized in cooperative practice as more and more members troop in, and new cooperatives formed. Such affiliations become a self-regulatory check by the affiliating cluster.

Table 9: Cooperative Affiliation

	Affiliation to Secondary			% Abstain	% No	% Yes
	% Abstain	% No	% Yes			
Total	2.63	39.47	57.89	7.02	16.67	76.32

In the primary Cooperative tier, where the theme of association is pronounced, more primaries are affiliated to 'secondaries' at 57.89 percent. Whereas capture strategies must still be devised to bring the non-affiliated to fold. Still at primary Cooperative tier, 76.32 percent are affiliated to either State/Province/Regional Federations. Such affiliation becomes very useful in the dissemination of developmental programme for implementation. Where the non-affiliated may prove unwieldy to manage, the structure of affiliation will make developmental objectives far easier to accomplish.

4.16 ICT INFRASTRUCTURE TERRAIN:

Inadequate and unreliable infrastructure services are common in the majority of rural communities in Africa. A goal of application of ICT in cooperative should be foremost to provide seamless administration experiences; and co-operative-on-the-go (COTGO). This would, in one swoop, address data paucity to data proliferation and banish secrecy for openness. It would usher transparency through cooperative management platforms and tools via the Internet, delivered through main stream channels and mobile, hand-held devices. That is the fed-forward expected outcome.

Currently though, Majority of the rural communities where many Africans who eke out a living on agrarian occupation reside, are prone to inadequate and unreliable infrastructure. One of the major causes is that rural areas are not considered profitable route in for profit infrastructural siting. In contrast service providers' networks are concentrated at the urban-city centers. On their part, these have positive implication on revenue projection as a result of the population density. Across the study area, apart from the departmental cooperatives, while management information system is scant, no cooperative was seen to operate institutionally-hosted services, rather cooperatives rely on service providers for data bundles just like airtime for internet access which facilitates web services and e-mail. So, it is safe to conclude that members in all the countries utilize GSM and internet enabled products.

Majority of the cooperatives who are manifesting some semblance of gravitation towards ICT at the moment operate client-server model. While this is not entirely bad in itself, movement towards shared services could be beneficial on the long-term. Also glaring is the knowledge gap on the need for, and benefits of ICT.

4.17 BEST PRACTICE CASES FOR SCALING UP TO OTHER REGIONS

1. Social Media Networking (SMN)

Social Media Networking foray into cooperative toolkit is an enhancer that can facilitate knowledge exchange, and knowledge transfer. It has the capacity for writing for the eyes and ears (visual, Audio and Audio-visual). SMN is a fringe toolkit in the array of ICT available to cooperative. When SMN compliments core cooperative application for management information system the potential is enormous. It is only limited by depth of user's creativity. It is a veritable virtual 'how-to-do-it platform for kindred cooperators. Across the geographical divide of the cooperative tiers, various combinations are used in varying degrees. These include: Social Networking; Facebook, Whatsapp, LinkedIn, Google+. Photo Sharing; Instagram, Video Sharing; Youtube. Others are Text messages, phone calls and use of Radio. One, and a combination of these SMN and mass media (radio) tool kits are used for dissemination and, or collection of information

2. Kenya Mobile banking.

Creative adaptations are central to best practice. Kenya discovered such a creative way in the use of cell phones for payments in social entrepreneurship. Through it, mobile phone companies engage in direct transfers of fund. With ICT, the next phase of cooperative management and administration can be designed around the portability of mobile phones.

3. Core Cooperative Application

There is need for dedicated, purpose-built cooperative application.

4.18 THE COVARIANCE IN ICT UPTAKE ACROSS THE TIERS

Covariance is real actioning that brings about change (varying) with another variable quantity in a manner that leaves a specified relationship unchanged.

Across the Cooperative Tiers covered in this study, varying relationships are reflected in:

1. ICT Training Frequency:  
Increased ICT training across the tiers positively relates to ICT skill acquisition. Basic ICT activities will no longer appear esoteric. ICT training will not only enhance knowledge, but also lend to fast-tracking adoption.
2. Financial Resources is inversely related to adoption of process automation. When the available financial resources in the cooperative coffers is low, it may affect the inclination towards ICT uptake.
3. Awareness of Potential Benefit  
Lack of Awareness of potential benefits in ICT negatively relates to adoption of process automation.
4. Cooperative Affiliation:  
Cooperative Affiliations via the cooperative tiers positively relates to receiving direction(s) for action. It has linkage to the experienced top-down guidance which galvanizes members for a desired development outcome; in this case, Cooperative affiliation could be a veritable tool for galvanizing interest and action for the uptake of usable ICT which will facilitate data automation. Cooperative affiliation has the merits of whittling groupthink effect.
5. Financial Commitment:  
Willingness to make financial Commitments positively relates to development and delivery on Cooperative core application and process automation. Willingness to make token financial commitment resonates across the tiers of cooperative.
6. E-mail:  
Administratively, e-mail inversely relates to voice-call across the cooperative tiers; where e-mails are obtainable. As electronic mails increase, it brings about discernible decrease in voice-call and face-to-face interaction. In rare cases voice-call become supplementary for clarification of unclear aspect of mail.
7. Process Flowchart of Activities:  
Clearly defined process flowchart positively relates to cooperatives' operational efficiency. Cooperatives who have functional process flowcharts appear structured. Tasks and assignees are known. The model thus reduces confusion and potential conflicts. It primes such cooperatives for ICT uptake and service standard definition across the cooperative operations.
8. Electronic data:  
There is positive relationship between electronic data and speed (i.e. timeliness) of cooperative business execution. As the band of available electronic data increases and those of manual data decreases, cooperatives would make decision(s) and execute business decision faster.
9. Automation:  
Automation positively relates to accuracy of data, speed of report generation, and resilience of the medium of automation as shown in the cases of those who use accounting applications

4.19. IMPACT OF GLOBAL FINANCIAL CRISIS ON COOPERATIVE:

- The last decade (2007-2017) witnessed an increase in cooperative emergence than previous times in modern history. A major contributory factor could be traced to the financial crisis also known as the global financial melt-down actively between 2007 and 2008. Whereas many economic activities contracted across the world leading to many businesses fold-up. Within the periods too, there were countries that were pummeled by international economic sanctions and internal conflicts with negative impact on human lives. Research findings shows that the cooperative institution thrived when other businesses were contracting. It goes to show that the cooperative sector is an absorber which cushions the economic impact and offers alternative means of livelihood to teaming members

Table 10: Cooperative Age Analysis

Primary			Years of Existence								Total
			Abstain	%	1-10 Years		11-20 Years		21-30 Years		
	Country	D.R. Congo	1	0.9	1	0.9	0	0.0	2	1.8	4
		Kenya	10	8.8	2	1.8	2	1.8	4	3.5	18
		Niger	2	1.8	9	7.9	9	7.9	0	0.0	20
		Nigeria	5	4.4	4	3.5	6	5.3	4	3.5	19
		Rwanda	1	0.9	4	3.5	2	1.8	1	0.9	8
		South Africa	0	0.0	10	8.8	0	0.0	0	0.0	10
		Tanzania	3	2.6	5	4.4	6	5.3	1	0.9	15
		Zimbabwe	0	0.0	12	10.5	7	6.1	1	0.9	20
Total		22	19.3	47	41.2	32	28.1	13	11.4	114	
Secondary			Years Of Existence								Total
			Abstain	%	1-10 Years	%	11-20 Years	%	21-30 Years	%	
	Country	DR Congo	0	0.0	1	1.4	0	0.0	0	0.0	1
		Kenya	1	1.4	0	0.0	0	0.0	0	0.0	1
		Niger	0	0.0	16	23.2	2	2.9	0	0.0	18
		Nigeria	1	1.4	0	0.0	3	4.3	0	0.0	4
		Rwanda	0	0.0	4	5.8	0	0.0	0	0.0	4
		South Africa	0	0.0	17	24.6	1	1.4	0	0.0	18
		Tanzania	2	2.9	3	4.3	3	4.3	10	14.5	18
		Zimbabwe	0	0.0	0	0.0	5	7.2	0	0.0	5
	Total		4	5.8	41	59.4	14	20.3	10	14.5	69
State/ Province / Regional Federations			Years Of Existence								Total
			Abstain	%	1-10 Years	%	11-20 Years	%	21-30 Years	%	
	Country	Niger	0	0.0	3	33.3	2	22.2	1	11.1	6
		Nigeria	1	11.1	0	0.0	0	0.0	0	0.0	1
		Rwanda	0	0.0	2	22.2	0	0.0	0	0.0	2
Total		1	11.1	5	55.6	2	22.2	1	11.1	9	
National Federation/ Country Apex	Country		Years Of Existence						Total		
		Abstain	%	1-10 Years	%	20-30 Years	%				
		Kenya	0	0.0	1	16.7	0	0.0	1		
		Nigeria	1	16.7	0	0.0	0	0.0	1		
		Rwanda	0	0.0	1	16.7	0	0.0	1		
		South Africa	0	0.0	1	16.7	0	0.0	1		
		Tanzania	0	0.0	0	0.0	1	16.7	1		
		Zimbabwe	0	0.0	1	16.7	0	0.0	1		
	Total		1	16.7	4	66.7	1	16.7	6		

- 41.2% primary cooperative across eight African countries in this research study, became operational in the last 10 years compared to 28.1% in the preceding decade. Zimbabwe alone is responsible for 10.5% of that increase, followed by South Africa with 8.8% new Primary cooperative addition. The republic of Niger has the third highest new primary cooperative within 10 years at 7.9.
- There is a matching pattern of increased cooperative activities in the past ten (10) years recorded in the secondary tier. 59.4% of Secondary cooperatives came on stream in the past 10 years. This is an increase compared to the preceding 10 years where 20.3% began operations. South Africa had 24.6%; the highest number of newly floated secondary tier cooperative in the past decade. Next is Niger with 23.2% additional Secondary cooperative economic activities in her territory compared to 2.9% in the prior decade.
- Similar increase was recorded in the State /province / regional tier. There was a 55.6% activity surge in the tier in the past 10 years. Niger and Rwanda had 33.5 and 22.2 activity in the tier in the past decade.
- It is worthy of note that corresponding increase is recorded at the country apex i.e. the national federations. 66.7%. This is apt because growth in cooperative size requires direction and guidance. The country apex could fittingly serve this role.
- The developmental increase across the cooperative sector In Africa in the past decade; between 2007 and 2017 sits-in with International Cooperative Alliance's (ICA) 2015 characterization of cooperative as "movement that ties together members by their common will to combine together individual forces in one enterprise, to develop sustaining



body and to promote the community's economics, social and individual standard."

- Voluntarily, peoples across Africa in their respective territories have increasingly formed themselves into units, groups and movement with shared objectives; not the least is the creation of common-wealth for the improvement of members' social-economic circumstance.
- Good as it is, this increase requires capacity building for members, executive management, regulators and stakeholders. The import of this is that there would be an acculturation of cooperative principles, values and beef up in other identified knowledge-gap. Equally necessary is the need for constant regulatory supervision to insulate members from abuse, less the last resort, which cooperative is proving to existing members and new members be mortgaged.
- This increase also presupposes that an extension of ICT for monitoring, will succeed in increasing the needed band for transparency. Increased transparency and accountability will be in the interest of all stakeholders in the medium and long-term.
- Appropriate ICT can also be used to rescue new entrants from poverty trap when used to diffuse knowledge in new productive patterns and dissemination of practices in alternative technology.
- The only certainty for now is that membership will continue to increase as unfolding world events unravel and the quest for alternative enterprise increases.

#### 4.20 National Ministry of Cooperative/National Government Department

##### 4.20.1 Federal Department of Cooperative; Nigeria

The Federal Department of Cooperative is situated in Nigeria - a country in the western region of Africa. It has an aggregation of five million (5,000,000) cooperative members dispersed across the country. The Department is affiliated to Alliance Africa. Like other National departments, it communicates with Alliance Africa via letters, phone calls and e-mail. It has a dedicated e-mail through which correspondences with cooperative communities in Nigeria take place. The e-mail address is: fdcnigeria@yahoo.com. However, it does not have active website, yet. This limits the visibility of the department's activities within and outside the shores of the continent.

Notably, the Federal Department of Cooperative gave reasons for keeping record to include:

- need for planning,
- need to comply with regulations;
- need to monitor cooperatives and cooperatives' business growth.

The popular record keeping tools used by the ministry include Computer-based System and File Hosting System.

Relative to operational process, the ministry deploys partial automation (a hybrid of manual and automated procedures) Although the Federal Department of Cooperative does not file periodic reports with Alliance Africa. Lack of financial resources was mentioned to be a constraint for not being able to wholly embrace ICT.

Federal Department of Cooperative has implemented Cooperative Data System (CODAS). The ministry noted that the system has positively influenced its record keeping capacity.

The Federal Department of Cooperatives informed that cooperatives in Nigeria would require special training in the event that mooted usable ICT is adopted. The FDC admitted such trainings will boost members' knowledge. The training areas, as highlighted by the FDC include: Computer Appreciation, the use of hardware, software and mobile phones.

On data collection from her affiliates in Nigeria, the ministry collects data and records through letters, Short Message Service (SMS), phone calls and e-mail. In the same vein, the department shares data among its affiliate members using phone calls, letters, radio announcements, and e-mail.

FDC agreed that using appropriate ICT is instrumental in receiving and disseminating market information; in enhancing trade and in easing communication within the movement.

Similarly, a finding from the research shows that the Federal Department of Cooperative is somewhat trendy with respect to the social media. At the FDC, the social media serve as a means by which information about FDC activities have been broadcast to the online-world. Nonetheless, only about forty percent (40%) of cooperative community in Nigeria have been active on social media Network via -Facebook and WhatsApp.

Conclusively, the Federal Department could not ascertain if cooperatives under its umbrella would be willing to commit, financially towards deploying full data automation.

#### 4.21 Reporting structure of co-operatives within the spheres of influence of Alliance Africa

Giving organized, written account or information – report - of activities is an index for later referencing, correlation, measurement and control.

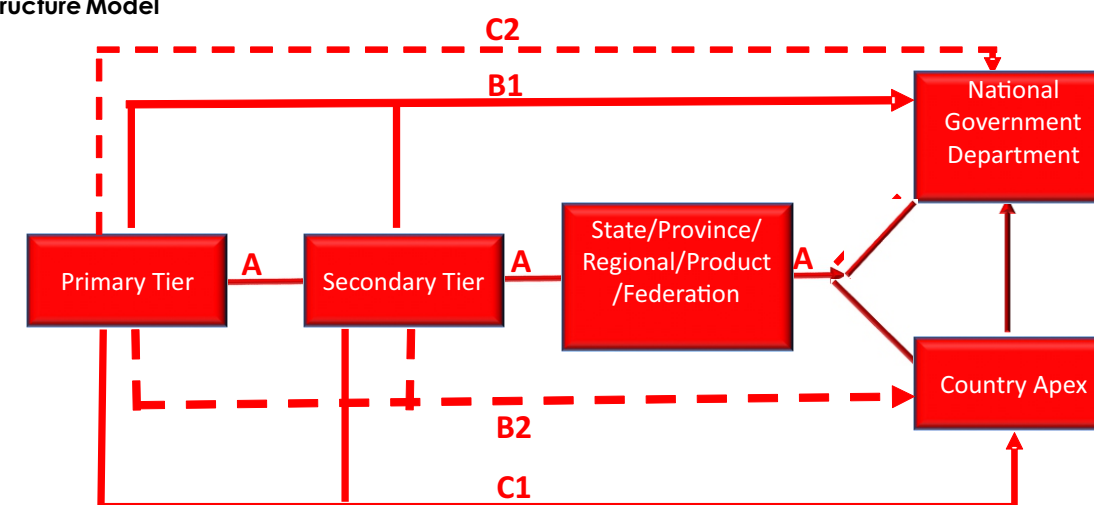
The lateral relationships among the cooperative tiers also occasion periodic reporting which are not limited to operation/transaction report, management report, regulatory report, statutory report etc.

The lateral, and, or vertical relationship created by cooperative affiliation give rise to scheduled and unscheduled, periodic reports.

The reporting structure across the study area for all four tiers; primary, secondary, State/Province/Regional/Product Federation and Country Apex (National Federation at inception (registration) is direct reporting line to National Government department. It is equally direct at de-registration of any of the first three tiers.

Post-registration, and during operational active years of the cooperative, one of, or a blend of A, B, C usually obtain as shown in the reporting structure model below.

##### Reporting structure Model



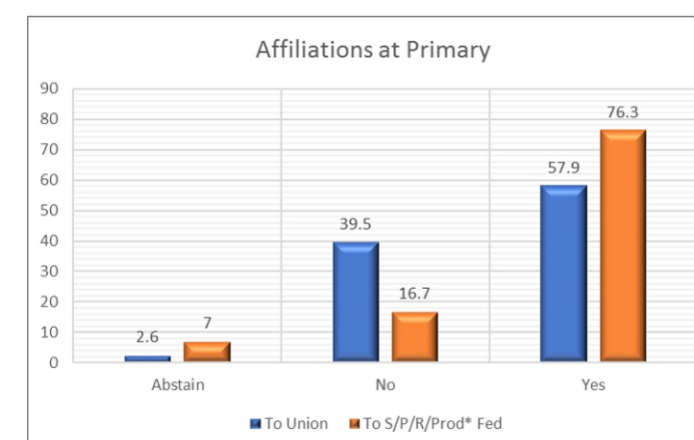
Model 'A' presents a linear flow of report originated from the Primary Tier to the Secondary Tier through the State/Province/Regional/Product Federation. From there, it is either direct reporting line to the Government Department and dotted line to the Country Apex, or dotted reporting line to the Government Department and direct line to the Country Apex. Model 'A' is almost ideal.

Model 'B1' showcases instances where Primary and Secondary Tier Cooperatives in some countries within the study group maintain direct reporting line to the Government Department, while they have dotted line of report to the Country Apex at B2.

Model 'C1' presents scenario where Primary and Secondary Tier Cooperatives do direct reporting to the country Apex, while they have dotted line of report to the Government Department at C2.

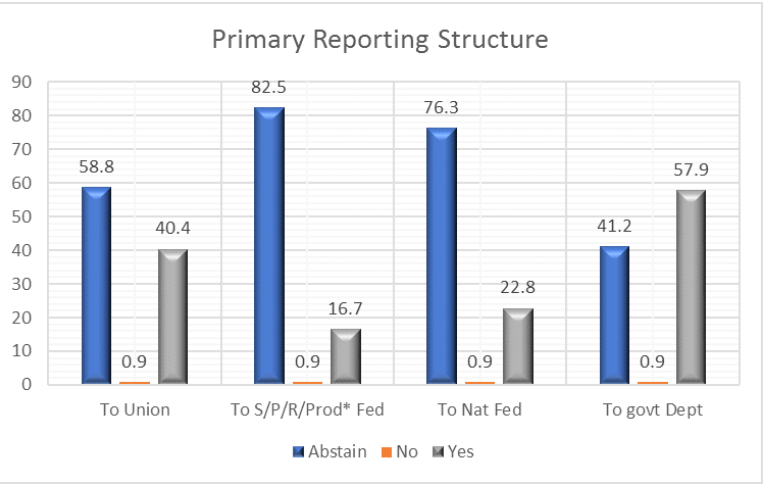
Ultimately, the Country Apex routes information from direct reports to Government Department for, and affiliated organizations; local and international. For instance, affiliation network at Primary Tier links to secondary and State/Province/Regional (S/P/R/Prod\*) Federation.

Chart 12: Affiliations at Primary Tier



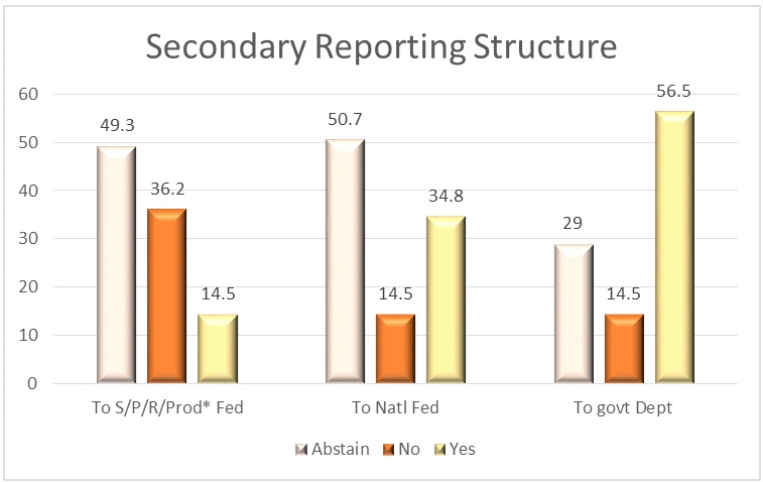
In Chart 12, 57.9% primaries are affiliated to Secondary Cooperatives, while 76.3% are affiliated to either State or Province or Regional or Product Federation. This affiliation is attended by the responsibility of filling scheduled and unscheduled reports.

Chart 13: Primary Tier Reporting Structure



Forty per cent Primary Tier Cooperative report to Union, 16.7% report to either State/Province/Regional or Product (S/P/R/Prod\*) Federation. 22.8% in the Primary Tier report to National Federation while 57.9 report to National Government Department. Comparatively, similar pattern is manifest in reporting at the Secondary Tier as shown in Chart 13.

Chart 14: Secondary Tier Reporting Structure



14.5% Secondary Tier cooperatives report to the State/Province/Regional or Product (S/P/R/Prod\*) Federation. 34.8% report to the National (Natl) Federation (Country Apex), while 56.5% report to National Government Department.

The correlation in Primary and Secondary Tier reporting Structure is accentuated in the commonality of relatively lower reporting to Country Apex and higher reporting to National Government Departments. While reporting is constant across the Cooperative Tiers, the Tiers at one point or the other has either a direct line of report, or a dotted line of report to the Country Apex or the National Government Departments. For instance, at registration, or de-registration A cooperative primary reports, directly, to the Government National Department of Cooperative,

**4.22 Gender Participation**

Considering the role of Cooperative in individual member empowerment, and income generating activities, 2.6% and 4.4% all-female member in the Primary and Secondary tier is insufficient to address issues retarding women development.

There are valid and pressing reasons to enlarge the span of economic options to the female-folk; particularly those in the rural areas. Through cooperative aggregation and engagements, they could venture into matching enterprise which in turn could be revenue earner.

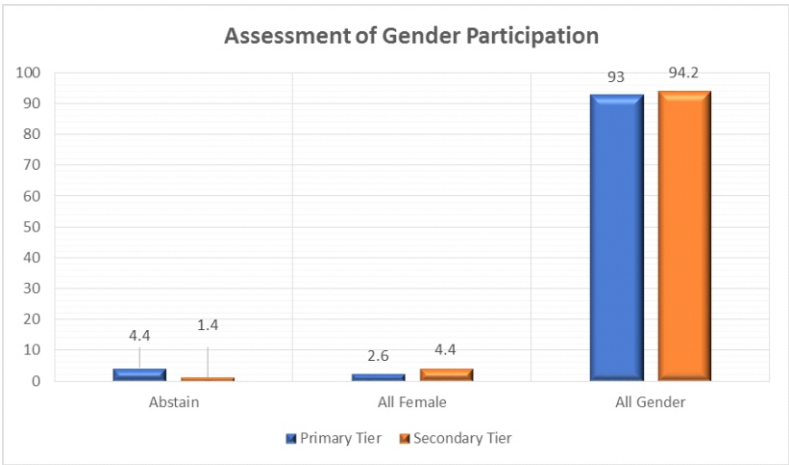
The concern here is that more “All-female” cooperatives should be encouraged. The attendant trainings such as management trainings will add to the depth of knowledge and experience, overtime. Similarly, the jostle for leadership through elective office, in an all-female cooperative environment will stimulate interest in political power.

In traditional African societies, there are enterprises that are considered exclusive constituency of female such as essential oil extraction, weaving, vegetable farming etc. For a start, more exclusive female associations should develop along this path, leadership training becoming diffused, political offices are contested, economic prosperity improves as they become aware of available markets and eliminate the scourge of middle-men.

Field findings shows that there is no gender-bar in the cooperative circuit within the sphere of influence of Alliance Africa. It suggests that progressive ideas could flourish across gender. 93% in the Primary and Secondary tier, respectively have membership as all-gender type. Although membership in Secondary is an aggregation of primaries, yet these primaries are collections of individual members. According to data collated, 94.2% of Secondary tier have membership as all-gender type. This indicates that membership is not restricted.

Exclusive, all-female membership occurred sparsely at 2.6% and 4.4% in the Primary and Secondary Tier as shown in Chart 15:

Chart 15: Assessment of Gender Participation



The cooperative with the highest number of male members in the ‘all-gender’ category has its figure to be thirty-one thousand, two hundred and fifty-four (31,254) while the cooperative with the highest number of female members in the ‘all-gender’ category is twenty-three thousand, three hundred and six (23,306). The cooperative space should continue to uphold the democratic ideal which allows for liberal support of gender-membership participation as may be preferred or desired by associating members at all time.

**4.23 An Outline A Comprehensive Dissemination Plan for The Popularization of Co-Operative Business Through The Developed Platform**

**Dissemination Activities**

1. Feature during Conferences and special events/ICA Conferences
2. Feature during Special Events in any of the African Countries that will have any of the target audience in attendance
3. Community Theatre Performance

Rural dissemination method

Share softcopy Research findings with

- 4. cooperative colleges across Africa
- 5. Report for research participants

Writing Short reports

- 6. Letter of thanks to study participants
- 7. Local Events/Seminars/Conferences/Community Meetings
- 8. Workshops Using ICA focal persons.

Dissemination Activities

Organized Annual Regional Capacity Building

Develop 'How to' ICT Training Kit

Make soft copy available for replication into hardcopies by users (Download for users)

Make audio visual soft copy available for replication into portable devices by for registered users (Download for users)

5.0 Summary:

The review of ICT uptake in Africa shows that African co-operatives utilize ICT in their internal operations; albeit very low. It shows high manual operation in the cooperative administration and further reveals that majority of Cooperative data are manual; locked away in aged ledgers; which are neither readily accessible, nor easily convertible, timely, when opportunity arise. The flipside of the manual mode of operations is automation of major cooperative processes through user-friendly ICT. Such automation reduces error rates, increases transparency, lends to management efficiency, and allows for data-on-the-go.

ICT diffusion in cooperative gives impetus to transformation. It accelerates capacity development, knowledge generation and dissemination, cooperative process enhancement and automation, among others. The flexibility of a user-friendly ICT transcends being a data hub alone rather a-cooperative-usable ICT should be capable of enlivening cooperative practice such that Members who are connected via ICT can share technical know-how and prevailing market information, engage in online trading etc.

While technical skill requirement may be disincentive to many users, which seems to have limited so many cooperatives to plain, accounting applications at the expense of management information system, the study reveals there are alternative to mainstream channels. These are found in portable, hand-held devices. Usable ICT can be scaled around these for general acceptance.

Responses from respondents pointed at education level, required ICT competency, cost of ICT services among others are some of the reasons for low drive in the uptake of ICT in Africa.

The study endeavoured to show that ICT will dust-up the image of cooperative movements. At full steam, ICT will facilitate Cooperatives to score higher in transparency and accountability more than it currently does. Post-implementation of Usable ICT, across the Cooperative Tiers, cooperatives can gather, store, retrieve and disseminate a broad range of information needed by various stakeholders. Then, cooperative administration will become easier for executive management. Government Departments of Cooperatives and National Federations or Country Apex have roles to play in the adoption of usable cooperative ICT. The strengths of affiliation, visibility and recognizability confer a power, capable of molding opinion of acceptance and, or rejection, on them. While Agenda Setting starts from Alliance Africa as the focal point, the need to carry along various stakeholders cannot be overemphasized. It should be pointed too, that Alliance Africa may not have a hundred percent buy-in at first, but the rank of support will grow, as various federations see the altruistic reasons for the call for a flexible, usable ICT. Furthermore, the study found that more cooperative came up in the last 10 years than previous decades. Zimbabwe, South-Africa and Rwanda, have experienced increase in primary cooperative in the last 10 years than prior years, compared to other countries. The study shows that on percentile scale, computer literacy is low among members across the continent. This, partly accounts for the reason why most cooperatives did not automate their operations. The import of this is that integration and adoption of computer use in Cooperative business administration is very low. Results shows that information gathering process among cooperatives in Africa is largely manual. Automation and use of ICT tools enhance data gathering process and makes it seamless.

Equally worthy of note, is the prevailing low literacy level among cooperative members in the rural areas who practice agricultural cooperative. Low literacy accounts for the low-level flair for ICT aid, such as smart-phone use, which also translate to the low exposure to the use of ICT and exchange of idea among cooperative members across Africa.

The result reflects the deficiency in the knowledge of the importance of an ICT tool like a website. The website opens the cooperative and its produce to the world. Cooperative in the urban and rural areas have not necessarily made judicious use of websites effectively. Having an active website is one of the criteria for the consideration of an entity as ICT-oriented. However, it is not enough to have a website; an enlightenment campaign on the importance of ICT tools may be required in the cooperative sector.

Overall, the adoption of ICT for data and process automation in cooperative practice is relatively low, even though data and process automation possess a lot of advantages which can enhance cooperative operations. Cooperatives in



Africa are unwittingly denied these benefits at the moment. It is also an indication that there is scarcity of flexible software that can cater for the variety of needs existing in the cooperative industry.

A major barrier cited for slow uptake of ICT is the perceived cost and lack of financial resources. To encourage the adoption of ICT, stakeholders are advised to facilitate the availability of ICT solutions at affordable cost; this should be one of the top-priorities for agenda setting task.

The study discovers that the use of phone calls and SMS gained prominence as methods of data sharing. The portability and 'multi-functionability' of the mobile phone is the pivot around which cooperative ICT solutions should be tied. It is cheaper and readily available. At least one can be found in every house. However, adopting ICT tools like e-mail and various social media platforms will yield the same result at little or no cost. These can plug into core cooperative application. The task remains to grow the band of members on social media platforms.

Finally, the degree of willingness on the part of the cooperative members to make a token financial commitment towards the deployment of a full automation process came to fore. It is logical to infer here that majority of the respondent desire the growth of the industry through the infusion of ICT even at their own expense. Perhaps, those who disagree might be converted if they are enlightened and they understand the criticality of ICT to cooperative operations.

#### 5.1 Recommendations

1. We recommend the development of Cooperative Resources Information Management Solutions (CRIMS). (as discussed at CRIMS prototype)
2. A user-friendly Cooperative application apart from being multi-channel, must go beyond mainstream technology, but essentially, needs to be developed around mobile phones to address the heterogeneous placement of members.
3. We present development-model recommendation for management buy-in (Pls. see Proposition for management buy-in).
4. We recommend that the identified issues must be addressed through concerted effort; Alliance Africa in conjunction with Government Departments and National Federations
5. We recommend that National Federations should provide periodic ICT training for Affiliates (it would serve as alternative revenue generation for the Apex)
6. We recommend that Alliance Africa and Country Apex go into negotiated trade agreements with manufacturers and major distributors to provide hardware (mainstream technology and portable devices) at subsidized rate for members and coop secretariat use at structured, installment payment.
7. We recommend that Alliance Africa should formulate policies that will facilitate the adoption of ICT by the Cooperative Tiers and work together with government department and National Apexes for implementation because of ICT's potential in speeding-up cooperative growth.

#### 5.2. Conclusion:

African Cooperatives are not entirely new to ICT. However, the robustness of the available application is limited by user skills, cost i.e. ability and willingness to pay by users, and some other geographical factors. Most of the available solutions are Accounting applications. More is required for management information system (MIS). To fill this void, Cooperative Resources Information Management Solutions (CRIMS) is recommended for the Cooperative Sector to bridge the universal-information-availability and data automation gap

An uptake of ICT is truly in the best interest of African cooperatives. It is an enabler that will speed-up growth, transparency and accountability. It is worthy of note to emphasize, here, that the sixth principle of cooperatives as given by Rochdale which aims at strengthening cooperation among cooperatives and promotion of cooperative movement through local, national, regional and international structures can be actualized faster, and with lesser constraint, relying on ICT.

It is not all countries in Africa that are currently leveraging the affiliative benefits of membership of Alliance Africa. One of the positives of being affiliated to Alliance Africa is that it lends a universal voice where cohesive thoughts expressed by African cooperatives can be echoed to the world. This presents a challenge of excellence to Alliance Africa, to be up and doing, to doggedly champion the course of African Cooperative, to facilitate intra and inter continent partnership, to institute

knowledge exchange as a combative strategy to liberate members from poverty trap, and ultimate to visibly improve the circumstance of affiliated members. These will be the attraction for non-members and new entrants.

There is need for Members to have e-mail, and, or phone. E-mail and phones are unique identifiers. It is one of the minimum requirements to associate, to be identified and granted access on many ICT platforms. It is a repository of information, and know-how from social, occupational and professional associates. It can be a boost for knowledge exchange and controlled exposure. Cooperative specific e-mail can be opened by Cooperatives; member e-mail may then be opened in sync to the cooperative's, or any other form. For a start, Cooperatives should sensitize members who have the requisite skills, ditto for those who are literate to do so. This way, the cooperative will deliberately move towards modern mode of communication in addition to traditional methods as opposed to drifting towards the modern mode of communication in the 21st century. Record keeping among the sample group is mostly manual, and by extension bulky.

Data and its aggregate, records present yardstick for measurement and benchmarking. There is obvious paucity of relevant data in the cooperative circuit to make measurement and benchmarking easier. This affects management decision making process. The need to redress this anomaly recommends ICT to stakeholders. Among others, it will help members, administrators to have handy records and do portable record-keeping, process large chunk of data without fretting and plan appropriately. Application of ICT in cooperative practice will make regulatory compliance easier. The sum of these activities will logically lead to cooperative business growth. Ultimately, it helps in moulding a legacy of enduring institution.

The identified barriers to uptake of ICT, should serve to spur alliance Africa and its board to work purposefully to reduce the band of the barriers and increase the band of acceptance. Inability to identify ICT relevance, lack of awareness of potential benefits; lack of ICT knowledge, technology expertise and implementation techniques; perceived cost and, or lack of financial resources, among others are veritable start-off point to demystifying the barriers.

There is need for incessant report; top-down, bottom-up. Reports constitute an index of progress, it gives early warning of digression from the agreed course. So, It would not be in the best interest of the cooperative movement in Africa to wait until everybody is ready. Early adopters and the aftermath majority adopters may prove to be the needed encouragement to galvanize the late majority and the laggards. Les Robinson (2009) in his review of Everett M. Rogers, Diffusion of Innovations Captioned A summary of Diffusion of Innovations warned that the innovator usually can't address them all at once.

There is a correlation between positive believe and positive action(s). Across the spectrum of the study group among African cooperatives, there is a consensus that appropriate ICT can be useful in receiving and sharing of market information, enhance trade and ease communication within the movement and to external stakeholders. This paradigm shift in thought process should be embraced by all. Essentially it should be supported by stakeholders to fruition.

A major obstacle to ICT Uptake would be willingness to pay for ICT services. However, one of the findings of the study is the affirmation of majority of the respondent in the sample group who expressed willingness to make a token financial commitment towards the deployment of ICT platform.

There is no gainsaying the fact that Effective decision making is founded on the quantity and quality of available data. By extension, Individuals and Institutions; both for profit, self-help and charity organizations need timely data for effective decision making, too. Now, It is left to Alliance Africa to Champion the course of a popular platform and galvanize the yearning for ICT platform into reality.

Typical of the agenda setting role it plays in the continent, Alliance Africa need to identify and agree specific ICT directions and employ both mediated and non-mediated media to promote the identified ICT-directions to cooperative stakeholders. Formulation of guiding ICT policies will facilitate the adoption of ICT by majority of members. A success in this regard will be additional laudable feather in the cap of Alliance Africa, which will form basis of attraction to currently non-affiliated members.

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