



The Impact of ICTs on Women's Cooperatives in Morocco: An Empirical Analysis

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Abstract: In Morocco, women's cooperatives play a crucial economic role, especially in rural areas, by providing employment and income opportunities. The integration of Information and Communication Technologies (ICTs) has the potential to further enhance these cooperatives by improving online sales, platform maintenance, and customer satisfaction. This study investigates the impact of ICTs on women's cooperatives, focusing on success factors for development and empowerment. A survey of 37 cooperatives across various Moroccan regions highlights the diversity in ICT adoption and underscores the need for specific training and support. The findings suggest that tailored policies and programs are essential to fully leverage ICT benefits for these cooperatives.

Keywords: Women's cooperatives, ICTs, Morocco, economic empowerment, digital transformation, online sales, rural development, training, policy support.

Digital Object Identifier (DOI): <https://doi.org/10.5281/zenodo.13765137>

Published in: Volume 3 Issue 4



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1. Introduction

In Morocco, women's cooperatives are playing an important economic role, providing significant employment and income opportunities, especially in rural areas. They generate new jobs and revenues for women and help promote innovation and growth in fields such as farming, handicrafts, and services. On the other hand, the deployment of Information and Communication Technologies (ICTs) has been a major transformational change in Morocco. ICTs have emerged as a fundamental pillar of modernization across a wide range of economic sectors, creating new opportunities for innovation, efficiency and development. They have changed the global economic environment. By facilitating communication, access to markets, management of information and connectivity across the world, ICTs have become a key driver of growth and innovation.

However, the potential of ICTs to boost the development of women's cooperatives is still a complicated subject. As ICTs become more and more widely adopted, it is essential to investigate how they can be used to help women's cooperatives develop their online sales, keep their platforms strong and meet their customers' specific needs.

Through a series of papers, we aim to explore how this can be realized. This first paper will focus on a full analysis of the impact of ICTs on women's cooperatives. We will explore how they can impact cooperatives' operations to respond to the changing needs of their members and customers.

So, this paper is an answer to the following research question: What are the success factors that impact the development of women's cooperatives and women's empowerment, through the adoption of ICTs? This question provides insights on how ICTs can be used to improve cooperatives and empower women members of these structures.

The principal goals of this contribution are to:

- Analyze the impact of ICTs on the performance of women's cooperatives in Morocco;
- Evaluate the challenges faced by these cooperatives in using ICTs;
- Explore ways of improving the use of ICTs in these cooperatives.

The empirical part of this paper focuses on women's cooperatives in Morocco. Specifically, we will explore how these cooperatives are present online, how they currently sell online, and the challenges faced in their use of ICTs. The study will help us to better understand the specific needs of these cooperatives and identify opportunities to improve their ICTs use.

The paper is divided into two parts. The first part is a literature review on the impact of ICTs on women's cooperatives. The empirical part includes the research methodology, the research results and a discussion of the findings.

2. Literature review

2.1 Women's cooperatives: Overview and role in women's economic empowerment

The International Cooperative Alliance (ICA) defines a cooperative as a people-centered organization that is owned and managed by its members to satisfy their common economic, social and cultural needs and wishes. In other words, it is an independent association of people who voluntarily work together to realize common economic, social and cultural goals through shared business and where power is democratically controlled based on the rule of "one member, one vote" (Didi and Attouch, 2022) .

Morocco's new legislation (law no. 112-12 on cooperatives, 2018), defines a cooperative as, " a group of individuals and/or legal persons, which agree to work together to create a business, which allows

them to meet their essential needs economically and socially. A cooperative is managed based on fundamental values and principles globally accepted by all the members".

The concept of women's empowerment, as defined by Susri (2016), has many dimensions, such as community empowerment and individual women's empowerment. Cooperatives play an essential role in empowering women economically, by providing:

- Employment opportunities: cooperatives provide significant work opportunities to women, in sectors such as agriculture, handicrafts, food processing as well as other local economic activities. This allows them to support their own families and their communities financially.
- Economic autonomy: through participation in cooperatives, women can earn their income and gain financial independence.
- Training and skills development: cooperatives provide training programs to help women learn new technical and entrepreneurial skills.
- Social networking and support: cooperatives offer networking and social support opportunities. They enable women to share ideas, experiences and advices with other members and boost their self-confidence and their ability to face new challenges.
- Awareness: cooperatives help women to learn more about their rights, health and other key issues.

To sum up, cooperatives provide economic and social opportunities that empower women. However, cooperatives must develop more inclusive policies and practices to ensure that women play a full and active role in these organizations (Susri, 2016).

2.2 Impact of Information and Communication Technologies (ICTs) on women's cooperatives

ICTs are used by individuals all over the world for many different reasons. They enable them to be connected at a lower cost, access to information and boost economic development and social involvement.

Nowadays, new digital technologies have become a fundamental factor in the management of businesses. Cooperatives must therefore transform their organization through digitalization. It is necessary for both growth and long-term survival in a changing and competitive environment (Javier and al., 2019).

In this context, we try to explore some specific areas where ICTs can play an important role in women's cooperatives:

- Getting access to information and facilitating cooperative management and coordination:

The use of ICTs in women's cooperatives facilitates the management and coordination of their activities. Digital tools help to monitor internal operations, accounting, human resources management and communication. As a result, members can work together more easily, share important information, and make faster decisions.

ICTs allow members to easily access to key information such as market trends, consumer preferences and real-time demand. Online platforms and specialized software programs facilitate the analysis of information, which helps cooperatives make better decisions. As a result, the quality of services offered to customers is enhanced and geographical obstacles are reduced. All these factors impact positively the performance of cooperatives (Yolanda and al., 2013).

Managing inventories, planning activities, as well as running projects, are also becoming more efficient through the use of ICTs.

- Developing new markets through online sales;

Creating platforms for online sales is an important step for the transformation of women's cooperatives. Such platforms provide a digital space where cooperatives can promote their products and services and reach new customers. However, the creation of these platforms is not enough to ensure their success. It is also important to keep them dynamic and attractive. For example, they can be designed to

automatically generate sales and incentive tools, such as advertising videos, attractive advertisement graphics, or descriptions of products. In this way, cooperatives can save time and produce high-quality customer-oriented content (Yolanda and al., 2013).

In addition to developing online sales websites, it is also crucial to build an active social networking presence on platforms such as Instagram and Facebook. Such platforms represent a great opportunity to communicate with customers, promote products directly and share visual content. This can boost the visibility of cooperatives.

However, many cooperatives create social networking platforms that are then ignored. A proactive approach is required in managing these platforms, by keeping content up to date, replying to customer messages and comments, and launching promotional campaigns. Training programs to help members learn how to use digital tools is a key factor for cooperatives to maximize the benefits of these platforms. Regular technical support is also required to solve any technical problems that may arise.

- Empowering women and improving their skills:

One of the main objectives of the digital transformation of women's cooperatives is to empower women. As Susri highlighted in 2016, ICTs, especially the media and the Internet, have an essential role to play in enabling women to learn new skills, to access and share information.

In this sense, there are several key factors in empowering women through ICTs:

- Development of digital skills: women need digital skills to use ICTs. This includes learning how to use computers, smartphones and online platforms.

- Access to online resources: through ICTs, women have access to a wide range of online resources, such as online training, professional social networks, discussion forums and learning platforms. This allows them to connect with other women who share the same concerns and goals.

To sum up, the role of cooperatives as a key player in women's empowerment is strongly boosted by ICTs. However, the definition of specific policies and programs to support women's empowerment through ICTs is an essential requirement (Javier and al., 2021). These must include training initiatives, subsidies to provide access to IT equipment and incentives that encourage women's involvement in cooperatives.

2.3 Challenges faced by women's cooperatives in using ICTs

There are many challenges related to the use of ICTs by women's cooperatives, which must be addressed to enable them to become fully independent and involved (Susri, 2016). These challenges relate mainly to:

- Limited access to ICTs in several areas: one of the major challenges faced by women's cooperatives is limited access to ICTs in some regions. Rural areas, in particular, suffer from a lack of connectivity infrastructure, which affects the ability to use ICTs to improve activities. To solve this problem, it is necessary to implement effective policies for the extension of digital infrastructures in the regions concerned.

- Lack of financial resources: financial problems can slow down the adoption of ICTs by women's cooperatives (Abdelkrim and al., 2019). The acquisition of computer equipment and connection to the Internet can be financially difficult for many women and cooperatives. In addition, internal cooperative resistance to change can also be a challenge. The initial investment required or a lack of trust in technology may make some members less open to the idea of adopting new technologies. To help women's cooperatives overcome these challenges, it is important to establish financial support mechanisms, such as grants or low-interest loans, to help them invest in ICTs. Additionally, targeted awareness can reduce resistance to change (Yolanda and al., 2013).

- A lack of digital skills: women face challenges related to their digital skills. It is necessary to learn the skills needed, such as surfing the Internet, using applications, and managing data. Training programs designed specifically for women's needs must be developed to improve their digital skills and help them be more at ease with technology.

In summary, to successfully overcome these challenges and fully maximize the advantages of ICTs for women's cooperatives, it is important to develop appropriate policies and programs, invest in digital infrastructure, support the adoption of ICTs financially and boost women's digital skills.

2.4 Challenges faced by women's cooperatives in using ICTs

In this section, we present some of the hypotheses of our research. These hypotheses aim to highlight the critical factors that influence the use of ICTs within women's cooperatives. We aim to better understand the challenges and opportunities related to the introduction of ICTs in the activities of women's cooperatives by exploring these hypotheses.

- Hypothesis 1: Without specific training in using ICTs, members of women's cooperatives may fail to use digital tools, thus limiting their ability to effectively manage cooperative operations.
- Hypothesis 2: Without proactive management and regular updates, women's cooperative online sales platforms may become static and unattractive, reducing customer interest and online sales opportunities.
- Hypothesis 3: The adoption and effectiveness of ICTs in women's cooperatives may be hindered by challenges related to their use, such as limited access, financial constraints, and digital literacy gaps.
- Hypothesis 4: Policies and programs designed to address the challenges of ICTs use can contribute to maximizing the benefits of ICTs for women's cooperatives.
- Hypothesis 5: Successful integration of ICTs in women's cooperatives can enhance their sustainability and contribute to local economic development.

These hypotheses will be explored and tested through empirical research to provide insights into the dynamics of ICTs adoption and its impact on women's cooperatives.

3. Empirical part

3.1 Context and methodology of research

In Morocco, government policy towards cooperatives has a long history. Since the country's independence, Morocco has adopted the cooperative as an effective tool for fighting social exclusion and promoting sustainable development, particularly for youth and women in rural areas (Didi and Attouch, 2022).

From 1956 to 1983, the government played a significant role in the cooperative sector. Measures and incentives were introduced to encourage the creation of cooperatives. The Office of Cooperative Development (ODCO) was created in 1962 to promote cooperative entrepreneurship. The government also provided subsidies for cooperatives.

Starting in 1983, the government's approach changed. Some of the advantages offered to cooperatives were gradually removed. As a result, new autonomous cooperatives were created, requiring more training and awareness. A new law was adopted in 1993 to encourage the independence of cooperatives, provide training opportunities for members, and support unions of cooperatives (Didi and Attouch, 2022).

Several state programs and strategies also contributed to the cooperative dynamic in 2012, including the INDH, the PMV, and the SNESS. The informal sector was also organized through these programs. To

promote the social economy and cooperatives, the regions have also developed Regional Plans for the Social Solidarity Economy (PDRESS). Furthermore, the MOURAFAKA program was created to improve the performance of cooperatives by offering technical and management support.

Nowadays, the Moroccan cooperative sector is growing all over the country, driven by a dynamic increase in both the number of cooperatives and their members. According to statistics from the Development Cooperation Office, the number of cooperatives in Morocco stands at 40 531, with a total of 646 901 members (ODCO, 2020). The government's role in revitalizing the cooperative sector and the priority given to its development are highlighted by this dynamic growth (Didi and Attouch, 2022). The methodology used in this paper aims to analyze the impact of information and communication technologies on Moroccan women's cooperatives. It is based on a qualitative approach, by using structured surveys, designed to collect information about 37 women's cooperatives located across different regions of Morocco.

The survey has been divided into four major topics, each one exploring a different aspect of ICTs use by the cooperatives:

- Presentation and overview of cooperatives: this section provides general information on cooperatives, such as the date of creation, the number of members, and the field of activity.
- Cooperatives' IT facilities: this section provides information about the access and use of technology in the cooperatives, including the availability of computers and smartphones, network coverage and communication options.
- Level of digital presence of cooperatives: this section explores the cooperative's online visibility, including the use of social networks, online sales, etc.
- Cooperatives' perception of ICTs: this section aims to understand perceptions, expectations, and priorities concerning the current and future use of ICTs.

The survey was designed to collect both quantitative and qualitative information, providing a detailed analysis of the needs, challenges, and opportunities related to the use of ICTs in women's cooperatives. The study included a representative group of 37 women's cooperatives, representing a wide range of sectors and geographical regions in Morocco. Information was collected through direct interviews with members of each cooperative using a structured interview questionnaire. Participant confidentiality and privacy were ensured throughout the entire process of collecting information.

The collected information will be analyzed to summarize the characteristics of the selected group and the main trends in ICTs use. We will also analyze to provide insights from the qualitative answers, with a focus on perceptions, motivations, and barriers to ICTs use.

3.2 Research results

3.2.1 Overview of the cooperatives

The 37 cooperatives studied in Morocco have a wide range of characteristics.

Their objectives and motivations depend crucially on their local context. Some cooperatives (around 16) focus closely on social issues such as women's employment and gender equality. Other cooperatives are involved in preserving traditional local crafts and culture. There are also many economic motivations, such as improving the quality of life and creating additional income. Belonging to a cooperative may also represent an opportunity to achieve a higher level of social status as well as to maintain a specific skill of craftsmanship or tradition.

Geographically, the cooperatives are located in 12 different regions of Morocco, which demonstrates a strong interest in developing and building on local resources. This geographical diversity enables the

cooperatives to meet the specific needs of each region and underlines the flexibility and adaptability of this organizational model.

More than 400 women are involved in these cooperatives. They have a wide range of educational levels, from illiteracy to advanced skill acquisition. In some cooperatives, the lack of education is balanced by practical and traditional skills. In other cases, training and education are valued. This diversity shows that cooperatives can promote learning and development, particularly for women in remote areas.

The 37 cooperatives work in various fields, including the production of couscous, argan oil, honey, and other products such as saffron, botanicals, and cosmetics. The members of the cooperatives build on their local knowledge and skills by preserving traditional production approaches that would otherwise be lost. Cooperatives play an essential role in preserving Moroccan culinary and artisanal cultures.

More than 10 cooperatives have received recognized accreditation, which is essential for ensuring product quality and access to new markets. Lack of accreditation in most cases could mean that specific support and assistance are needed to achieve a significant improvement. This will allow them to successfully operate and compete in bigger markets.

The cooperatives studied use a mixed commercial strategy that combines traditional and online channels. Being present at fairs, exhibitions, and festivals is considered a strategic and key approach, as it allows them to increase their visibility. Some cooperatives also use online channels such as Instagram and WhatsApp.

Cooperatives use premises with different levels of quality and equipment, including simple garages as well as showrooms. Direct sales channels are highly developed, such as sales to local customers and passersby. Some cooperatives have made agreements with delivery firms to facilitate distribution. However, cooperatives are suffering from a lack of adequate premises, difficulties in working with delivery companies, and reliance on local markets. In addition, being dependent on a few events, such as annual exhibitions, can create revenue stream problems.

For some cooperatives, the ability to use modern technology may be a source of competitive advantage, while for others, it may be more valuable to keep using their traditional processes.

Such diversity in equipment requires a clear understanding of the needs to develop appropriate support programs.

- IT equipment of cooperatives

The different cooperatives surveyed demonstrate a wide range of experience regarding their network coverage, equipment, and communication approaches.

Approximately 55% of the 37 cooperatives studied have good network coverage, most frequently using 4G, allowing them to communicate easily. The remaining 45% did not provide details of their network coverage or mentioned low or inexistent network coverage, which represents a significant barrier to their communication and online activities.

Regarding computer equipment, nearly 60% reported having at least one piece of equipment, such as a computer or smartphone. Some cooperatives have computers or other equipment, but they are not used, often due to illiteracy or lack of training. Many cooperatives also use personal equipment, which can restrict their ability to manage their business professionally.

For external communication, WhatsApp is the most popular way, used by approximately 75% of cooperatives. This is followed by phone calls. However, the use of email and social networks such as Facebook and Instagram is limited in many cooperatives.

For internal communication, WhatsApp remains the main tool, used by nearly 50% of cooperatives. Face-to-face communication is used by around 25%. However, some cooperatives have not specified their internal communication methods.

To summarize, this analysis indicates that most cooperatives have network coverage and are using modern communication tools such as WhatsApp. Nevertheless, significant progress still has to be made in terms of adopting IT equipment and using diversified communication tools. Special attention can be given to modernizing communication methods as well as investing in information technology to enhance the efficiency and connectivity of the cooperatives.

- Digital presence and perception of cooperatives

Only a limited number of the studied cooperatives have a significant digital presence. They are using social media such as Facebook and Instagram to promote their products and services and to sell online. More than 40% of cooperatives have a digital presence but are inactive. Cooperatives have created social media accounts but don't actively use them to communicate with customers or promote their businesses. Many cooperatives (around 40%) do not have a digital presence at all. In other words, they have no social network accounts, websites, or any other means of online communication.

Most cooperatives have a clear understanding and recognition of the importance of digital. For them, digital is an essential factor to be considered for visibility, communication, management, e-commerce, and sales growth. They also consider online platforms and social networks as ways to reach new markets and customers.

Some cooperatives believe that the role of digital technology is more than promoting products. It also includes improving internal and external communications, analyzing markets and processing orders. Technology is considered a facilitator that makes all these functions more efficient and transparent.

Many cooperatives have identified ICTs goals for the future. Some of them, around 25%, were able to name specific technologies and tools that they plan to use in the future. In addition, they see a clear requirement for specific training programs to help them master particular software and equipment.

A significant number of cooperatives, around 70%, did not specify their future ICTs priorities. Lack of specification may mean that there is a need to provide some orientation in selecting appropriate technologies.

To sum up, the future priority needs identified by cooperatives include specific technological requirements, such as the acquisition of computers, Internet access, the creation of WhatsApp business accounts, and social networking pages. At the same time, several cooperatives also identified the importance of training to help them learn how to use specific software and tools. Additionally, some cooperatives are planning a more extensive modernization, which includes acquiring smartphones for each member to increase digital access and the ability to operate in a digital environment.

The analysis conducted based on the 37 cooperatives demonstrates a diversity in their approach towards the use of digital technology. In fact, despite a general awareness of the importance of digital, the breakdown between active, low-active or inactive cooperatives without any digital presence, highlights significant disparities.

Training, support and investment are needed to help these cooperatives successfully compete in this new age, fully use digital technology, and improve their online strategies.

- Obstacles and opportunities

Cooperatives are facing many different challenges.

Several cooperatives reported problems related to illiteracy and lack of technology skills. There is also a lack of appropriate training available. Cooperatives do not have the skills needed to use modern equipment. As a result, they are unable to develop their activities and gain access to new markets.

Financial and commercial problems are some of the major challenges faced by many cooperatives. Indeed, the lack of finances and materials was highlighted as a common difficulty that can impede the

development and modernization of cooperatives. This includes both financing and investment problems and the lack of equipment required to grow according to market needs.

For many cooperatives, problems related to logistics and infrastructure represent a significant challenge. This negatively impacts both the marketing and distribution of their products. These issues can be multiple. It includes a rural geographical location, which may make it more difficult to access markets, and a lack of transport facilities. Logistical challenges such as lack of access to transport or expensive distribution costs can also be factors behind this limitation, which further reduces the sustainability of these businesses.

Limited network access hampers productivity and efficiency. Moreover, other challenges exacerbate these logistical issues. Lack of online presence, strong competition, geographical barriers, and other logistical problems are frequent.

Furthermore, the development of around 25% of cooperatives can be severely limited by a lack of infrastructure, especially equipment, machinery, and appropriate premises.

On the other hand, increased competition and lack of market access are causing problems for some cooperatives. These challenges are often related not only to marketing issues but also to the lack of management skills required for sales.

The future of cooperatives is full of opportunities that can be used to achieve continuous growth and success. One of the main ones is the increasing interest shown in organic products. Many cooperatives consider this to be a promising new market opportunity that can be supported by government subsidies. In addition, consumers' demand for healthier, greener products represents an opportunity to develop their strategic market position.

Digitalization and e-commerce are another promising area of development. Some cooperatives consider them an opportunity to develop their activities by using online marketing tools. Selling online and using social media to promote their products can help cooperatives raise their visibility.

Support programs, subsidies and external assistance can also help remove some of these challenges. Working in collaboration with institutions to provide technical and financial advice and obtaining certifications can improve the quality and competitiveness of cooperatives, helping them to compete more successfully in the marketplace.

Innovation and diversification of products can also create new growth opportunities. Developing new products that meet local needs can create new markets and increase sales revenues.

Moreover, attending national fairs and events can increase visibility and sales, creating more possibilities for developing international markets.

To summarize, there are many opportunities for cooperatives to improve their position and develop their products. They can capitalize on the growing demand for organic products, use digital tools, receive external support, innovate and diversify their products, and participate actively in national fairs and events.

3.3 Discussion and perspectives

The results presented in the present study demonstrate the rich diversity of the Moroccan cooperative model. Regional characteristics, varied objectives and diverse fields of activities make cooperatives an essential part of Morocco's economy.

However, they are also facing considerable challenges, including literacy and a lack of training, as well as difficulties in management, finance, and logistics. An understanding of these challenges is the key to define targeted interventions and support that can help cooperatives to succeed.

At the same time, the opportunities are numerous. Growth in demand for organic products, geographic expansion, key partnerships, digitization, and support from the government are just some of the opportunities for cooperatives to grow and innovate.

Many cooperatives have identified the opportunity to grow and expand their activities abroad, using free trade agreements and international partnerships to access new markets. The increasing importance of traditional and artisanal products can be an opportunity for these cooperatives to develop their competitive position.

Governmental, non-governmental, and other support can also help to overcome financial, educational and other barriers. This can be provided through subsidies, training, market access facilitation and tax incentives.

Investing in the training and development of cooperative members can help bridge the skills gap and create a culture of continuous learning culture. This may include training in technical skills, management skills, marketing skills and in the use of technologies.

On the other side, using technology solutions to improve management, production, marketing and communication skills can help improve cooperative activities and create a competitive advantage. Digitalization can help cooperatives achieve better results. Online sales allow them to reach a larger number of customers as well as provide a more precise targeting tool. Communication can be improved by increasing their visibility on social networks and by using collaborative solutions that simplify internal communication. As a result, customer satisfaction, efficiency, transparency and agility are boosted.

Achieving these opportunities depends on a collaborative, integrated approach that involves the cooperatives themselves, governments, private partners and educational institutions. Given the right support, a clear vision, and a will to innovate, Moroccan cooperatives will be able to keep playing a key role in helping to promote the development of the country's social and economic systems.

Moroccan cooperatives seem to have a very promising future. With the right support and the appropriate level of awareness of the opportunities and challenges that characterize each cooperative, their growth and development can be fully achieved.

To conclude this section, the table below provides a summary of the research hypotheses along with explanations drawn from the study results to support or refute each hypothesis.

Table 1. Summary table of hypotheses and their verifications

Hypothesis	Explanation	Status
Hypothesis 1: Without specific training in using ICTs, members of women's cooperatives may fail to use digital tools, thus limiting their ability to effectively manage cooperative operations.	Many cooperatives reported challenges related to digital literacy and a lack of technology skills among their members. While some cooperatives have access to ICT's equipment, illiteracy and lack of training often hinder their use, validating this hypothesis.	Validated
Hypothesis 2: Without proactive management and regular updates, women's cooperative online sales platforms may become static and unattractive, reducing customer	The results indicate that only limited number of cooperatives have a significant digital presence and actively use online marketing tools. Others have created social media	Validated

interest and online sales opportunities.	accounts but do not actively use them, validating this hypothesis.	
Hypothesis 3: The adoption and effectiveness of ICTs in women's cooperatives may be hindered by challenges related to their use, such as limited access, financial constraints, and digital literacy gaps.	The findings confirm that many cooperatives face challenges related to ICTs use, including limited network coverage, equipment availability, and communication tools. This validates the hypothesis that challenges related to ICTs usage exist within women's cooperatives.	Validated
Hypothesis 4: Policies and programs designed to address the challenges of ICTs use can contribute to maximizing the benefits of ICTs for women's cooperatives.	The results indicate that opportunities for growth and development exist, such as support programs, subsidies, and external assistance, which can help address the challenges. Government and non-governmental support can play a crucial role in enhancing the benefits of ICTs for cooperatives, validating this hypothesis.	Validated
Hypothesis 5: Successful integration of ICTs in women's cooperatives can enhance their sustainability and contribute to local economic development.	The findings suggest that digitization and ecommerce are promising areas of development for cooperatives, and that digital tools can improve efficiency, transparency and agility. This aligns with the hypothesis that successful ICTs integration can enhance sustainability and local economic development in cooperatives.	Validated

4. Conclusion

The results of the study highlight the diversity and complexity of the Moroccan cooperatives studied, and thus the challenges and opportunities they face in the digital age. A key conclusion of this study is the crucial importance of digital literacy within these cooperatives.

In this context, it is essential to develop customized platforms to effectively support these cooperatives in their online presence. These platforms need to provide automated coaching and training that goes beyond the facilitation of online presence.

Following this study, we will focus in our next paper on defining an adapted approach for the development of these customized digital platforms. We will also explore the implementation of this

approach in an experimental context. We aim to actively contribute to the empowerment of cooperatives by implementing effective digital solutions that meet their specific needs.

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5. Appendix

5.1 Appendix 1 : Qualitative interview questionnaire

Theme 1: Overview

- Cooperative creation date
- Number of individuals
- Field of activity
- Etc...

Theme 2: IT Equipment / Internet Connection

Computers ?

- If yes, how many?
- For what purposes (data storage, activity management, customer databases, etc.)? • If not, what are the reasons? (List the reasons)

Smartphones ?

- Internet connection?
- Does the cooperative have an internet connection?

- If yes, in what form (ADSL cable, 4G, etc.)?
- If not, for what main reason(s) is the internet used?

Personal internet connection?

Communication methods and internet usage?

- Current communication methods?
- For communicating with current or potential customers?
- For communication among cooperative members?
- (Use of email? WhatsApp? etc.)
- Discuss the current communication methods, preferred communication methods, and encountered obstacles.
- If the cooperative uses the internet, what are the main uses?

Theme 3: Digital Presence of the Cooperative

- Does the cooperative have a digital presence?
- In what form(s) (social networks, Facebook page, Instagram, etc.)?
- In case of digital presence, for what purposes?
- Perception of the importance of digital presence?
- Obstacles and motivations
- Does the cooperative sell on the internet?
- How?
- Presence of a website?
- Perception of the importance of online sales?
- Discuss motivations and obstacles.

Theme 4: Perception of the Future Role of ICT

- What role should ICT play for the cooperative in the future?
- Prioritized ICT for the future?
- Perception of the importance of online sales?

5.2 Appendix 2 : Overview of cooperatives

Cooperatives	Presentation
EL HAMRI POUR LA SOLIDARITÉ ET LE DÉVELOPPEMENT	<p>Created in 2021, the EL HAMRI Cooperative operates from the CENTRE KAID EL MANSOURI, DOUAR EL HAMRI, and consists of 11 female shareholders, of whom 3 are on the board of directors. Although its objectives are not specified, it is active in the agri-food sector, focusing on the processing and preservation of agricultural products, particularly the drying of fruits and vegetables. It has received a certificate of appreciation from the ONSSA, but details regarding the sales channel and equipment are not specified.</p> <p>The cooperative faces an area where connection is inaccessible. It has a computer dedicated to the cooperative, used mainly for data storage. Additionally, the president owns a phone. The preferred external mode of communication is the phone, particularly with customers via WhatsApp, while email is rarely used. Limited literacy rates and deficient use of technology hinder participation in the cooperative's development.</p> <p>The cooperative has an active digital presence with a Facebook page. They use this platform to publish the cooperative's activities as well as the products offered. Customers have access to the sales site, can place orders, and make online payments. The level of activity is not provided, and future priority ICTs are not specified.</p> <p>Among future opportunities, the possibility of creating a greenhouse for growing aromatic plants and participation in a national fair stand out. These avenues may allow the cooperative to diversify its offer and extend its reach in the market.</p>
Nectus Bio	<p>Founded in 2019 in Douar Lghaba Sidi Hamad Ouhmad, Essaouira, Nectus Bio is composed of two founders, three managers, and 60 women. Its goal is the integration of women and the provision of an additional wage margin. The cooperative specializes in oil extraction and the production of cosmetic and food products, with certifications such as ONSSA and IGP, and is in negotiation for the FFM certificate. Its products are sold at a sales point in Essaouira, in showrooms and fairs, and it also works in subcontracting with Luxe.</p> <p>Nectus Bio has WiFi network coverage thanks to Maroc Telecom. The cooperative owns three computers that are not used, but the manager uses his personal computer and phone, mainly for taking and placing orders. External communications are primarily carried out via WhatsApp and email, while internal communications are direct.</p> <p>The cooperative has a Facebook and Instagram page, but they are very underdeveloped, with fewer than 50 followers. They perceive the digital role as essential for management, innovation, and online commerce. They also see the need for adequate training.</p> <p>The cooperative suffers from a lack of sales points and premises, a shortage of investment, and limited mastery of computer tools.</p>
AMASNIGHREM	<p>The cooperative AMASNIGHREM was founded in 2013 in Douar Agoujgal, Cercle Touama-Marrakech Elhouz, with eight female members. It aims to provide regional added value, promote literacy, and share revenues equitably. The cooperative produces a variety of agri-food products, such as couscous and semolina. The products are sold at the solidarity market, Oasis.</p> <p>It is located in an area where the connection is inaccessible or very weak. It does not have its own IT equipment, but the manager has a personal computer and phone. External communication is mainly via WhatsApp and email. The cooperative is faced with a combination of challenges related to its rural location and geographical isolation, such as transportation problems and a lack of internet connection. Illiteracy among the members limits their ability to adopt modern technologies, while reliance on a single management and the absence of computer tools reduce the efficiency of daily operations.</p> <p>The cooperative does not have an active digital presence, with an inactive Facebook page that only contains posts from the opening, products, and photos of the region. The level of activity is inactive, but they perceive several objectives of the digital role, including the development of awareness, the use of efficient software, the facilitation of management, and the increase in turnover. Future-priority ICTs are not provided.</p>

DOHA	<p>The DOHA cooperative is located in Birjdid, near Casablanca, and has more than 10 female members, predominantly from challenging backgrounds. Its main activity is focused on agri-food, particularly the enhancement of agricultural products and the production of couscous, flour, and honey. Despite the absence of specific certifications, the DOHA cooperative focuses on selling its products within its premises. It uses the manager's garage for storage.</p> <p>The cooperative benefits from 4G network coverage and has a phone used for communication with customers and suppliers. External communication is mainly carried out via WhatsApp and email.</p> <p>The DOHA cooperative has no digital presence and has provided no information on the form of presence, use, or activity level. They perceive the digital role as important for marketing, communication with customers and suppliers, distribution independence, and the importance of ICT for sustainability and production optimization.</p> <p>The DOHA Cooperative faces several obstacles that affect its operation and growth. Distribution and supply difficulties, coupled with yield instability and a lack of training, limit its ability to function effectively. The absence of an online presence also makes it difficult to reach new markets and customers. However, the cooperative benefits from a few notable opportunities, including the production of 100% organic and diversified products that meet growing demand. Moreover, low local competition and an increase in summer sales offer potential for growth and expansion, which can be leveraged with appropriate strategies.</p>
Femmes Libres	<p>Founded in 2015, the Femmes Libres cooperative is located in Oued el Maleh, Mohammedia. It consists of 29 female members and focuses on agri-food and cosmetic areas. The cooperative offers a variety of natural products and holds ONSSA certification. The products are sold through the solidarity market and Aswak Assalam. The cooperative's equipment and means were not specified.</p> <p>It has WiFi network coverage. Almost all the women in the cooperative have a phone, which is used for storing customer numbers and using WhatsApp. The preferred mode of external communication is WhatsApp.</p> <p>The cooperative does not have its own digital presence, and its presence is only through the Terroir du Maroc website. No additional information was provided regarding usage, activity level, perception of the digital role, or future priorities in ICT.</p> <p>The cooperative faces challenges like limited data storage and constrained market access, further intensified by a lack of expertise in marketing and e-commerce. Their limited resources for digitization also hinder their growth prospects in today's fast-paced digital landscape. Nevertheless, the cooperative stands on the cusp of great opportunities. Their strategic location, combined with the rising demand for organic products, offers a distinct advantage. Additionally, the potential for direct home deliveries paves the way for enhanced customer relationships and market expansion.</p>
Tiwizi Wargan	<p>Established in 2005, the Tiwizi Wargan cooperative is located in the center of Arbaa Sahel in the Tiznit province. It has 23 members who have received training in digital communication from PAMPAT Morocco. The activities of the cooperative are focused on agri-food, with products such as argan, amlou, couscous, and zemmita. Neither the certifications nor the sales channels and equipment are specified.</p> <p>It has WiFi network coverage. The cooperative has a computer, and almost all the women have a phone, which is used for accounting, video surveillance, and communication via WhatsApp. External communications are carried out by phone, call, and WhatsApp, while internal communications are done through a WhatsApp group.</p> <p>The Tiwizi Wargan cooperative has a digital presence on Facebook and Instagram, but it is inactive. They use these platforms for product promotion, but the level of activity is low. They perceive ICT as vital for commercial exchanges, management, and environmental control. Future priorities in ICT have not been specified.</p> <p>The Tiwizi Wargan Cooperative faces obstacles that hinder its development, particularly difficulties in marketing and transportation that limit its ability to reach new markets. Inadequate training and equipment exacerbate these problems, making it difficult to adapt to new sales and production methods. The failure to implement online sales also reflects a lack of technological skills and resistance to adapting to current market trends.</p>

<p>Tahanaout Douar Chemss</p>	<p>Established in 1950, the cooperative consists of a dozen groups of 10 members, varying by family. Their areas of activity cover agri-food, essential oils, wool, and tapestry. The products include wheat, semolina, oats, and couscous, without specification on certification, sales channels, or equipment.</p> <p>This cooperative does not have network coverage or IT equipment. The modes of internal and external communication are not specified. No information has been provided regarding the form of presence, use, or level of activity. They perceive the digital role as important for visibility, communication, management, increasing profit, and improving the product. Future priorities in ICT have not been specified.</p> <p>The cooperative faces obstacles such as illiteracy and limited technological knowledge that make digitization difficult. A lack of resources and some reluctance towards digital transformation also hinder its growth potential. Nevertheless, it benefits from notable opportunities, such as evolving in a profitable business sector where it does not encounter direct competition. Furthermore, the adoption of innovations and fresh ideas offers promising prospects for its future development.</p>
<p>Al-Amal</p>	<p>Founded in 2006, the Al-Amal cooperative focuses on agri-food and plays an essential role as a source of income for its 13 female members. The members have various levels of education and training. Their products include medicinal and aromatic herbs, couscous, soap, ghasoul, etc. They have received ONSSA certification for some products and a gold medal for couscous. Sales are made through various channels, and the cooperative owns a drying machine for couscous.</p> <p>The cooperative has not specified network coverage. It does not own IT equipment, but a few women have a phone, and there is a personal computer used to introduce the cooperative to digital and the use of WhatsApp. External communication is done by phone call and WhatsApp.</p> <p>The Al-Amal cooperative has a digital presence on Facebook and Instagram but is not very active. Usage has not been provided, and the level of activity is low. No information has been provided about the perception of the digital role or future priorities in ICT.</p> <p>The Al-Amal cooperative faces major obstacles, including financial constraints and training gaps, as well as a lack of skill in the area of online sales. However, it has significant opportunities, such as its local expertise and ONSSA certification, which offer a competitive advantage. Moreover, the cooperative could consider transitioning to social media to broaden its reach and market access.</p>
<p>CHAHD AHMAM</p>	<p>CHAHD AHMAM is a cooperative founded in 2017 composed of five women specializing in beekeeping, although they lack skills in marketing or management. Information about the products, certifications, and location is not specified. The means include beekeeping-specific equipment such as hives, veils, gloves, etc.</p> <p>The CHAHD AHMAM cooperative has network coverage despite poor quality and uses 4G. Each woman has her old smartphone, which she uses to access WhatsApp. External and internal communication is mainly done via WhatsApp and face-to-face.</p> <p>The cooperative has a weak digital presence, with an inactive and low-quality Facebook page with few followers. It perceives the digital role as crucial for promoting honey, expanding the customer base, and recognizing the importance of information and communication technologies (ICT) for information and sales. Its future priorities in ICT include investment in computers, ADSL, and training to master certain software.</p> <p>The CHAHD AHMAM cooperative faces significant obstacles, such as financial and commercial constraints, as well as a deficit in transportation and technical skills. However, opportunities present themselves through external support programs that could provide essential support. Additionally, the cooperative can capitalize on its strong and committed human capital to overcome these challenges and thrive.</p>

<p>تعاونية المرأة و العمل فم العتصر بني ملال</p>	<p>Founded in 2015 in the province of Beni Mellal, this cooperative consists of between 4 and 10 women, depending on sales. They produce couscous, olives, honey, and olive oil, with certifications such as ONSSA and a Gold Medal for the best couscous in Morocco. Sales are made through a local outlet, traditional channels, festivals, and exhibitions.</p> <p>The cooperative has network coverage available occasionally. It has a computer, which is not used since the women are illiterate. External communication is mainly done via WhatsApp and GSM phone calls, while the mode of internal communication is not specified.</p> <p>The cooperative has a digital presence through a Facebook page and an Instagram page but is inactive. Its use of its digital presence is focused on promotion, visibility, and sales, although it is currently inactive. Its perception of the digital role is centered on seeking new recruits and partners, accelerating production, and improving visibility. Its future priorities in ICT are Web 3.0 and integrated Internet services.</p> <p>The cooperative faces notable obstacles, including difficulties related to the marketing and distribution of its products. Furthermore, a lack of skills and an absence of an online presence hinder its development. The challenges are compounded by competition in the market and the effects of drought.</p>
<p>NISSAE DKHISSA</p>	<p>Located in Meknes-Fes, the cooperative NISSAE DKHISSA, established in 2015, specializes in the production of natural olives. Information about the members, qualifications, and certifications is not specified. Sales are made through various means, including social networks and solidarity markets.</p> <p>The cooperative has 4G mobile network coverage. Members use personal phones for communication. Externally, they use Instagram, WhatsApp, and phone calls for sales, while internally, they communicate via WhatsApp.</p> <p>The cooperative has an online presence with an Instagram page and uses this platform for selling and showcasing its products. Its digital role encompasses promotion, online sales, digital development, and marketing through platforms like Jumia, AgriSoo9, and Coop Maroc. It plans to develop a website and join online trading platforms.</p> <p>The cooperative NISSAE DKHISSA faces major challenges, including increased competition in the market and logistical constraints. Furthermore, the lack of an online presence limits its visibility. However, significant opportunities present themselves, including the possibility of reducing expenses and expanding its market through e-commerce. Additionally, the cooperative can leverage social networks to interact directly with customers and strengthen its presence and influence in the sector.</p>
<p>INSAF</p>	<p>The INSAF cooperative has seven members and focuses on the food industry. It markets 100% organic food and cosmetic products. The cooperative has ONSSA certification and sells its products through two local stores in Ain Louh, the solidarity market, and social networks. Details on equipment and resources are not specified.</p> <p>The INSAF cooperative has 4G and WiFi network coverage. It has a computer exclusive to the cooperative that is not used, and the secretary has a personal computer. Most women have a phone, which is used for managing orders, emails, and social networks. External communication is carried out through phone calls and social networks, and internally through calls and WhatsApp.</p> <p>With a Facebook page and an Instagram page, INSAF uses its digital presence for marketing exclusively through Facebook. It perceives the digital role as a means to facilitate sales, increase income, and grow online sales. Its future is geared towards creating a website.</p> <p>The INSAF cooperative faces major obstacles, including marketing and market positioning problems as well as financial and educational constraints.</p>
<p>DIYAE</p>	<p>Located in Meknes, the DIYAE Cooperative, founded in 2013, focuses on food production, including oils, amlou, couscous, and dried aromatic plants. The cooperative consists of five women, of whom the founder is the only educated one and teaches the others reading and writing. They own three machines and mainly sell through small markets and exhibitions, with ONSSA certification.</p> <p>It has personal 3G network coverage. The members use personal phones. We mainly communicate externally through direct sales and exhibitions, while we conduct internal communication by phone call.</p>

	<p>The cooperative does not have an active digital presence and only has an inactive Facebook page. Usage is not applicable, and the activity level is inactive. However, it sees the digital role as a way to expand its clientele and facilitate exports. The future priorities in ICT are an Internet connection and a laptop.</p> <p>The DIYAE Cooperative faces major challenges, including a lack of machines and adequate equipment, which can hinder its productivity and production quality. Moreover, the absence of a direct sales platform limits its ability to effectively reach customers.</p>
RAZAN	<p>Located in Tetouan and founded in 2016, the RAZAN Cooperative aims at the economic empowerment of women and raises awareness of the therapeutic issues of the region's plants. In 2019, it had 23 members, and in 2022, this number dropped to 6. The cooperative focuses on the production and marketing of dried herbs, plant hydrosols, and essential oils. They are sold at a few physical retail outlets.</p> <p>The Razan Cooperative has unstable network coverage. The members use personal computers and phones. External and internal communication is mainly carried out via WhatsApp and phone calls.</p> <p>Its digital presence is very weak, with just an unprofessional Instagram page. Usage is not specified, and the activity level is low. It perceives its digital role as a means to increase sales and raise customer awareness. Its future priorities in ICT include social media accounts and a website.</p> <p>The cooperative finds itself hampered by understaffing issues that may affect its productivity, while competition in the sector adds additional pressure. Insufficient revenue limits its growth, and access to suitable IT tools might hinder its operational efficiency. Nevertheless, opportunities are looming, such as the ability to train and recycle water to reduce costs, the potential support of local authorities for development, and compliance with hygiene standards, which could strengthen customer trust and enhance the company's reputation in the market.</p>
IGUI ISRASSE	<p>IGUI ISRASSE was created in AGADIR and has between 20 and 30 members. Their objectives are to promote and market Moroccan and local traditional products transformed into 100% organic food or cosmetic products. Certified by ONSSA, they have an additional sales point in Casablanca, with deliveries in major cities.</p> <p>The IGUI ISRASSE cooperative operates with 4G network coverage. Regarding the IT equipment specific to the cooperative, the use of email is quite low. It is used less than WhatsApp, whether among cooperative members or with customers. Cooperative members also use their personal IT equipment, such as computers and personal phones. Specific details regarding the use of these devices can be added as needed. Concerning the mode of communication, the cooperative favors certain methods. For external communication, it is done mainly via WhatsApp or GSM phone calls. Similarly, internal communication between cooperative members is also conducted via WhatsApp or GSM phone calls. This choice of communication methods underscores the importance of modern communication channels in the cooperative's daily operations.</p> <p>With a digital presence on Facebook and Instagram, although not very active, IGUI ISRASSE has not specified its usage. The activity level is low, and the digital role is seen as promotion through ICT and digital advertising. Future priority ICTs are not specified.</p>
IMIK SIMIK	<p>The IMIK SIMIK Cooperative, established in 2012 in Ouarzazate, focuses on craftsmanship and has 43 female members. They specialize in Moroccan pastries and couscous manufacturing. The cooperative participates in exhibition fairs both nationally and internationally.</p> <p>It has 4G network coverage. The manager uses a Samsung smartphone for communication with clients, receiving orders, and posting new products on Facebook. External communication is mainly done via WhatsApp and Facebook.</p> <p>The cooperative has a digital presence through a Facebook page and uses this platform for communication, orders, and promotion. Its perception of the digital role includes awareness, sales, marketing, and communication. Its future priorities in ICT are social media and sales platforms.</p> <p>The cooperative faces major obstacles such as the absence of dedicated premises and social acceptance difficulties, which might hinder its development. Moreover, limited education within the community and the absence of an online presence restrict its visibility and reach. However, significant opportunities arise, including the possibility</p>

	of further community awareness to promote acceptance and the cooperative's geographic expansion. Creating new outlets, potentially through collaborations or diversifications, could also help overcome these barriers and stimulate growth.
AL ISMAILIA	<p>The AL ISMAILIA cooperative, established in 2013 in douar oulad si bouchaib, commune sidi smail, province El Jadida, focuses on encouraging women's work by guaranteeing them a better future and a stable income. With 10 permanent members, the number can vary up to 20 depending on the workload. The cooperative primarily operates in the agri-food sector, producing and marketing couscous and spices such as zamita and oat flour. The methods used are often rudimentary, including sieving at the mill and manually grinding seeds, although the cooperative has an electric oven. The sales channel includes formal and informal means, including the use of the Internet and collaboration with grocers via WhatsApp and phone.</p> <p>The cooperative has unstable network coverage with ADSL at home and 4G at the premises. It has a computer used for downloading purchase orders and communication. Members also use personal phones for receiving and making calls with clients and other members. Communication is mainly done via calls, messages, and WhatsApp. It has a Facebook page and a YouTube channel, although they are inactive, to ensure its online visibility. It perceives the digital role as essential for data transfer, cost reduction, electronic payment, and marketing. Future priority ICTs are not specified.</p>
BIOM	<p>The BIOM cooperative is located in the province of Azilal (Beni Mellal-Khenifra region) in the central High Atlas, douar tizki, commune AIT MAJDEN. It collaborates with other small cooperatives and includes two permanent women and three temporary women. The cooperative focuses on the production of honey and the marketing of products from other cooperatives, taking care of the merging, monitoring, packaging, and marketing. The sales channels used include voice calls, WhatsApp, and direct contact sales.</p> <p>It has 4G mobile network coverage. The IT equipment is not specified, but the founder has a personal computer and two phones. The modes of communication are not specified.</p> <p>Without a digital presence, the BIOM cooperative does not have any form of online presence. Nevertheless, it recognizes the digital role in organization, quick management, online sales, and customer loyalty. Its future priority ICTs include Excel, Instagram, Facebook, and Gmail.</p>
Mosquée blanche	<p>Created in 2016 and located in Douar Ait Siberne between Meknes and Khemisset, the White Mosque cooperative employs 13 women in the production and enhancement of couscous. Although these women have good experience in couscous production, they have limited knowledge of digital means. However, two of them have shown motivation to learn. The sales channels are mainly based on direct sales, and the equipment includes a headquarters with production material, water, electricity, and a telephone network.</p> <p>The cooperative has not specified network coverage and does not have IT equipment. External communication is done face-to-face and by telephone calls for orders. The mode of internal communication is not specified.</p> <p>The cooperative has no digital presence. It perceives the digital role as facilitating sales via a website, providing quick access to information, and recognizing the risk of being left behind by new communication modes. Its future priorities in ICT are internet connectivity for visibility and an information system for internal management.</p> <p>The cooperative's rural location and the limited digital knowledge present major obstacles, while its lack of online presence exacerbates competition in its sector. Nevertheless, promising opportunities are on the horizon, such as a grant for construction and equipment purchases, offering crucial development potential to overcome these barriers and enhance its competitiveness.</p>

Nassamat Bab Al Atlas	<p>Founded in 2019 at Lotissement Ayoub, Number 40, Boufekrane, near Meknes, the Nassamat Bab Al Atlas cooperative is composed of 5 women, two of whom are illiterate. It operates in the production of essences, oils, and powders, including dried tomatoes and red garlic powder. Marketing is mainly done through a regional office in Meknes and participation in various fairs and exhibitions.</p> <p>The Nassamat Bab Al Atlas cooperative has not specified network coverage or IT equipment. External communication is primarily done via WhatsApp, fairs/exhibitions, and direct contact with consumers. Internal communication is informal and direct.</p> <p>Information regarding digital presence, form of presence, usage, and activity level was not provided. The cooperative perceives the digital role as facilitating order management, enhancing communication with stakeholders, attracting new customers, strengthening competitiveness, developing awareness, and emphasizing the importance of online marketing.</p> <p>The lack of specific information regarding digital presence and IT infrastructure may indicate a limited focus on these areas. It could be beneficial for the cooperative to invest in developing an online presence and adopting digital tools, as this could help them expand their market reach, streamline operations, and increase overall competitiveness, especially in a growing market that values natural and locally-produced products. Collaboration with local authorities and organizations that support women's economic empowerment could be explored to address potential literacy and digital skill gaps, allowing the cooperative to fully leverage digital opportunities.</p>
AL Amal TIGRIGRA	<p>Launched in 2006 in Ayt Yahya Oualla TIGRIGRA Azrou, Morocco, the AL Amal TIGRIGRA cooperative aims to combat poverty and marginalization, create opportunities for women, and enhance the agricultural products of the region. The cooperative produces and markets agricultural products, including aromatic and agri-food plants such as couscous, lavender, and roses. It holds ONSSA certification and sells its products to individuals at the solidarity market in Oasis de Casablanca and at a sales point in Azrou.</p> <p>The cooperative has very weak wifi network coverage and has a computer that is not used for emails but mainly for data storage. Members use personal phones, and external communication is made by telephone call or directly. Internal communication is not specified.</p> <p>The digital presence is not very active, with a Facebook page for the presentation and marketing of products. The level of activity is low. The cooperative perceives the digital role as a means to promote teleworking, investment promotion, market analysis, the establishment of an information system, advertising, and expanding the customer base. Online marketing is seen as a competitive advantage. Future priorities in ICT include modernization with information and communication technologies.</p>
TIFIOUINE ANGALE	<p>Founded in 2016 in the village of Amzmiz, near Marrakech, TIFIOUINE ANGALE consists of 20 women and specializes in the manufacturing of various agri-food products, including apple-based vinegar, couscous, and essential oils. It has a single sales point in the city of Marrakech. Details about certifications, members, and equipment are not provided.</p> <p>The cooperative has WiFi network coverage but no 4G. It has an unplugged computer and smartphones for the manager and five other members, used mainly for WhatsApp with clients. External communication is done via WhatsApp, Instagram, and Facebook.</p> <p>The cooperative is present online with a Facebook and Instagram page, with usage and activity levels unspecified. It sees its digital role as enhancing governance, impacting the production system, and optimizing activities. The computer workstation for data management is identified as a future priority in ICT.</p> <p>The cooperative faces major challenges related to high costs that could hinder its economic viability. Moreover, the absence of a presence on social media limits its ability to effectively reach a broader audience and promote its products or services.</p>

EL KADIOUIA	<p>EL KADIOUIA, established in 2016 in Oualad Sidi Ben Maassoud, El Jadida, consists of six women and one delivery person. The cooperative focuses on the production of couscous and its derivatives, and its products are certified by ONSSA. It even received a gold medal for its cereal-based products in 2022. EL KADIOUIA has two premises for production and storage, but information about members and equipment is not specified.</p> <p>The cooperative has not specified network coverage or cooperative IT equipment. It uses smartphones (3 members) with unstable 4G for communication between members and with some clients. External communication is made via physical sales points without a digital presence and internally in person or occasionally by phone or WhatsApp.</p> <p>Without a digital presence, the cooperative recognizes the opportunities of digitalization, the creation of pages on social networks, profit increases, and the importance of digitalization. Future priority ICTs include smartphones for each worker.</p>
NOUR DARNA	<p>Created in 2021 in Sidi Bennour, it includes seven female members and one founder. The cooperative aims to help women in the region enter the market to ensure a decent standard of living. It specializes in the production of couscous, semolina, wheat, and flour, and it doesn't have its own premises. Certification is underway, and equipment is not mentioned.</p> <p>The cooperative has 4G/5G network coverage. It has one computer, 5 phones, and an unused email for contact with suppliers/clients and managing the Facebook page. External communication is direct, via calls, social media, and WhatsApp.</p> <p>The cooperative has a Facebook page, which is not very active, for the presentation and marketing of products. The cooperative sees the digital role as contributing to brand image building, attracting new clients, and facilitating communication. Future priority ICTs include a tablet for the leader and social networks for the cooperative's identity.</p> <p>The lack of financial means to access the Internet constitutes a major obstacle for the cooperative, hindering its ability to leverage online benefits such as promotion, communication, and searching for new business opportunities.</p>
Tamount Imintlit	<p>Established in 2003 in Douar Ait Ahmad, Rural Commune Imintlit, Province of Essaouira, the Tamount Imintlit cooperative comprises 30 women, mostly illiterate. It specializes in the extraction and production of argan oil and amlou and holds several certifications, including those from ONSSA and ECOCERT. The cooperative sells its products via an underdeveloped website and participates in regional fairs. Information on equipment is not available.</p> <p>The cooperative has not specified network coverage. It has two computers and phones used for action plans, order taking and processing, and online marketing. The mode of communication is not specified.</p> <p>The cooperative is present on Instagram and Facebook. The perception of the digital role emphasizes the importance of ICTs for visibility and customer interest in online sales. Future priority ICTs include social media accounts and a website.</p> <p>The cooperative faces major obstacles, with the emergence of new high-performing cooperatives creating increased competition. Financial challenges, management issues, and marketing issues complicate its growth. The absence of digitalization also represents a major challenge in an increasingly connected world. However, opportunities arise through growth prospects from exports and local consumption. The ability to withstand and innovate in the face of these challenges could enable the cooperative to realize its potential and thrive in the market.</p>
ISTISS TAHANAOUT	<p>N village of Tahanout, near Ourika. It has five members, of whom three are literate, and focuses on the food and cosmetic industries. The cooperative's activities include the production of various cereals, argan oils, medicinal herbs, and other products. They don't have their own premises and operate with very minimal resources. Additional information, such as goals, certifications, and equipment, is lacking.</p>

		<p>The cooperative does not have its own connection, and a member provides a personal connection. It has not specified cooperative IT equipment and uses a mobile phone (treasurer) for external communication via WhatsApp, word of mouth, and exhibitions.</p> <p>Information on presence, form, usage, and the level of digital activity is not provided. The cooperative perceives the digital role as opening up national and international markets, targeting customers, accelerating sales, and emphasizing its importance in this time of crisis. Future priority ICTs are not specified.</p> <p>Several major challenges hinder the cooperative, such as the high cost of raw materials, a location that doesn't generate enough revenue, and a shortage of essential machines. Moreover, the demand for products is decreasing, and the absence of a social media presence limits marketing, while weak network coverage complicates activities. Nevertheless, opportunities are emerging, notably a growing demand for organic products in foreign markets, the possibility of obtaining financial aid, collaboration with associations to enhance capabilities, and the ownership of production machines, which could be an asset to meet demand and improve competitiveness.</p>
Tamounte		<p>Established in 2013, Cooperative Tamounte is located in the center of Imilchil Drâa-Tafilalet, in the province of Midelt. With 13 women members, including one manager, the cooperative aims to improve the socio-economic conditions of women, increase their incomes, and create stable jobs. Active in the agri-food sector, it produces couscous, its derivatives, and cakes. It is not certified, and some information regarding qualifications, sales channels, and equipment is missing.</p> <p>The cooperative has weak network coverage with six WiFi problems and uses 4G. It has not specified cooperative IT equipment and uses smartphones for limited contact with customers. External communication is limited and unprofessional, and internal communication is mainly through WhatsApp.</p> <p>Without a digital presence, the cooperative recognizes the importance of ICTs for awareness and efficiency and has plans to expand into the digital realm, including online sales. Future priorities in ICT include the creation of WhatsApp businesses and pages on social networks like Instagram and Facebook.</p> <p>Several significant constraints hinder the cooperative. First, marginalization due to geographical isolation leads to marketing problems and limited access to markets. Additionally, the digital divide is a major challenge due to the lack of digital culture and computer equipment, limiting the ability to take advantage of online benefits. Management-related issues, such as a lack of organizational efficiency, may also hinder growth. Moreover, the absence of a digital presence limits the cooperative's visibility and reach.</p>
TAMOUNTE NTIZNIN		<p>Founded in 2010, TAMOUNTE NTIZNIN is located in the Taroudant Douar Ayt Taleb region, Tamloukt municipality. It has 20 female members and operates in the agri-food sector. The cooperative focuses on the manufacture of food and cosmetic products, such as couscous, argan oil, and others. Certified on 6/26/2018, it sells to passersby at the souk and various local fairs. The work is mainly done at home with traditional tools.</p> <p>The cooperative has a weak network without ADSL. It has not specified cooperative IT equipment and uses personal phones for direct external communication and WhatsApp with some women. Internal communication is not specified.</p> <p>Digital presence is not detailed, but the cooperative emphasizes awareness and computerization of the sales process in its perception of the digital role. Future priority ICTs include a PC and an internet connection, a website for sales, emails, and training for women.</p> <p>The cooperative faces major obstacles, including a difficult-to-access rural location that complicates operations. Moreover, the lack of information and training in information technology (IT) poses a significant challenge. Members limit themselves to using mobile phones without mastering new digital techniques. The absence of computers, the low number of smartphones, and total digital illiteracy further limit the cooperative's ability to adapt to modern technological tools.</p>
NISSAE MEJJATIYA	EL	<p>The NISSAE EL MEJJATIYA Cooperative, established in 2019 in Douar Wlad Taleb, aims to encourage and assist housewives and rural women to enter the business world. With 12 female members, it focuses on agri-food, producing honey, couscous, and argan. It sells directly to consumers and local suppliers, with no delivery option. The cooperative is registered in the trade register, but other information concerning equipment is missing.</p>

	<p>The network coverage of the NISSAE EL MEJATIYA cooperative is not specified. They use a mobile phone for calls and WhatsApp. External communication is conducted directly with clients and via WhatsApp for the president, while internal communication is not specified.</p> <p>Without a digital presence, the cooperative perceives the digital role as enhancing competitiveness, facilitating order management, and increasing sales. Future priority ICTs are not specified.</p> <p>The limited budget hampers the cooperative's logistical cycle, impacting its operational capacity. Moreover, the absence of a digital presence limits its visibility and connectivity with customers. However, the opportunity to obtain a grant from ONSSA for equipment acquisition offers a positive outlook for overcoming these constraints and improving operations.</p>
TIGHEZRATINE	<p>Established in 2011 and located in the Douar of Tighezratine, Taza province, the Tighezratine Cooperative has 70 women members. It specializes in the production and enhancement of various types of almonds. Marketing is done locally in a traditional manner through various festivals and exhibitions. More information about the goals, certifications, and equipment is needed.</p> <p>TIGHEZRATINE Cooperative suffers from a lack of a stable network and uses a personal 4G connection. It has an office for storage and a phone for customers. External communication is mainly based on word-of-mouth and phone calls, while internal communication uses WhatsApp and phone calls.</p> <p>The Tighezratine Cooperative has not yet established a digital presence. However, it recognizes the importance of the digital role in easing communication, promoting products, and increasing sales. Unfortunately, future priority ICTs have not been specified for this cooperative.</p> <p>The cooperative faces several major obstacles, including drought, which affects the quality of almond trees and, therefore, production. Additionally, a lack of liquidity limits bulk purchases and hampers growth. Limited financial resources and a lack of digital skills further complicate the situation. However, the cooperative can capitalize on the region's fame for producing high-quality almonds, potentially boosting demand and helping overcome these challenges by improving production quality and exploring new marketing strategies.</p>
Al9ima	<p>The Al9ima Cooperative, founded in 2016 in Tafoughalt, focuses on the production of honey, spices, pasta, and oils. With 22 female members, it sells its products physically and at exhibitions. While some details on objectives, qualifications, and equipment are missing, the cooperative plays a role in the local agri-food sector.</p> <p>The cooperative faces almost nonexistent network coverage with a weak signal. It uses a smartphone for communication. External communication is conducted locally and by phone, and internal communication is made via phone calls and sometimes WhatsApp.</p> <p>The Al9ima Cooperative has not specified its digital presence. The perception of the digital role in this cooperative is centered on long-term investment and brand awareness building. Future priority ICTs are not specified.</p> <p>The cooperative is hampered by major obstacles, including a very low literacy rate among its members, which limits their ability to understand and manage complex business aspects. Plus, insufficient technology familiarity restricts the adoption of digital tools to enhance operations.</p>
TIFAOUT	<p>Located 40 km from Taroudant, the TIFAOUT Cooperative was founded in 2004 with the goal of enabling women in the region to profit from argan oil production. It has 44 members and mainly produces argan oil and amlou. Some information concerning certifications, sales channels, and equipment is missing.</p> <p>The cooperative doesn't have its own internet. It uses personal computer equipment like a computer, smartphones, and 3G recharge. External communication is managed via emails and phone, and internal communication is managed via phone and WhatsApp.</p> <p>TIFAOUT Cooperative has a digital presence through its Facebook page, which is mainly used to present its activities. It perceives the digital role as a means to reach more people, cut costs, and create the brand. Future priority ICTs are not specified.</p>

	<p>The cooperative faces complex challenges on social, technical, and infrastructure levels. However, it has interesting opportunities such as a solid production organization, high-quality product production, a strong willingness for change among its members, and a network presence in the region. By capitalizing on these assets and working on problem areas, the cooperative could overcome obstacles and leverage opportunities to enhance its performance and sustainability.</p>
AL-HOUDA'	<p>The AL-HOUDA' Cooperative, established in 2011 in Ouezzane Houara, has 30 women members. It specializes in olive oil production and has won various national and local awards. More information regarding goals, sales channels, and equipment is needed.</p> <p>The cooperative has weak network coverage with 4G. It uses phones for calls and WhatsApp. External communication is done via phone calls and WhatsApp, while internal communication is direct between the women.</p> <p>The Al-Houda Cooperative maintains an active digital presence with a website and an Instagram account. It uses these platforms to attract more customers and facilitate contact. The digital role is perceived as a means to develop online sales and retain customers. Future priority ICTs are not specified.</p> <p>The cooperative faces varied constraints, such as access to the site, issues related to government aid, and successive droughts, which hinder growth. Additionally, it faces threats such as growing market competition and the risk of raw material monopolization. However, it can leverage opportunities provided by international organizations' aid and local authorities' support to overcome these obstacles, strengthen its competitive position, and achieve potential growth.</p>
Dar El Khair	<p>Founded in 2014 in Meknès by Moulay Driss Zerhoun, Dar El Khair aims to encourage women in the region to move beyond the status of housewife. It has 40 female members and specializes in drying and manufacturing medicinal and aromatic plants. The cooperative is authorized by ONSSA.</p> <p>The cooperative has no network coverage and uses a 3G subscription and personal phones. External communication is carried out via WhatsApp and direct phone calls, and internal communication is direct since they all reside in the same location.</p> <p>Dar El Khair Cooperative has no digital presence at the moment. However, it sees the need for a website and visibility on Instagram for smoother online sales. Future ICT priorities are not specified.</p> <p>The cooperative faces major obstacles, including financial constraints that hinder its development. In addition, since the majority of the female members are illiterate, this may limit their involvement and understanding of operational aspects. Communication difficulties exacerbate these hurdles, as does the weakness of self-financing means.</p>
EL HADGA MFASSIS	<p>Founded in 2015 in MFASSIS, El Hadga MFASSIS has 30 female members and primarily produces couscous and its derivatives. It sells locally and has an ONSSA certification. The cooperative is distinguished by the manager, who has specific qualifications in geography and computer development.</p> <p>The cooperative has a weak 4G internet connection. It uses the manager's computer and a personal 4G connection. The cooperative communicates externally via email, WhatsApp, and phone, while managing internal communication through direct visits.</p> <p>The cooperative El Hadga MFASSIS does not have a digital presence. It perceives the digital role as a means to reduce costs, increase profitability, and expand clientele. Future ICT priorities include smartphones and computers.</p> <p>The cooperative faces significant obstacles, including a limited clientele and insufficient digitization, that restrict market access and competitiveness. Moreover, the limited budget and lack of financial assistance aggravate these hurdles. However, opportunities present themselves through potential state support via grants, donations, and financial aid, which could help the cooperative overcome its challenges, invest in digitization, and expand its clientele, thus contributing to its growth and sustainability.</p>
Oum Al Khairat	<p>Oum Al Khairat, founded in 2021 in Douar Drag, has five female members and specializes in the production of gluten-free seeds and flours. It sells through exhibitions, fairs, locally, and via WhatsApp, but has insufficient means for equipment.</p>

	<p>The cooperative has average network coverage. It has a non-functional computer and personal phones. External communication is done via WhatsApp and phone calls, and internal communication also uses WhatsApp and phone calls.</p> <p>The Cooperative Oum Al Khairat has a weak digital presence and a low level of activity. It sees in the digital role an opportunity for client expansion and online sales. Future ICT priorities are an internet connection, communication platforms, and a computer.</p>
Allslah	<p>The Cooperative Allslah, founded in 2004 in Inzgame Ait Melloul, Agadir, brings together 42 women aged 40 to 60, working to provide a stable income to support their families. Operating in the agri-food sector, it specializes in the production of argan oil and its derivatives. The cooperative uses a car for delivery and has extraction machines obtained through government aid.</p> <p>The cooperative has WiFi but is not subscribed. It uses a computer and a smartphone, as well as a personal connection. External communication is handled through phone calls and voice messages via WhatsApp, and internal communication uses the same methods.</p> <p>It has a digital presence on Facebook and Instagram, although not very active, for product promotion. It perceives the digital role as a means for the development and expansion of clientele and the reduction of regional disparities. Future ICT priorities include an online sales site, a database, and a printer.</p> <p>The cooperative faces several obstacles, including limited knowledge in computing and languages as well as rising raw material prices, which impact its performance. However, promising opportunities are emerging, such as the improvement of infrastructure and roads and the potential for e-commerce development and digitization of sales to broaden its market reach.</p>