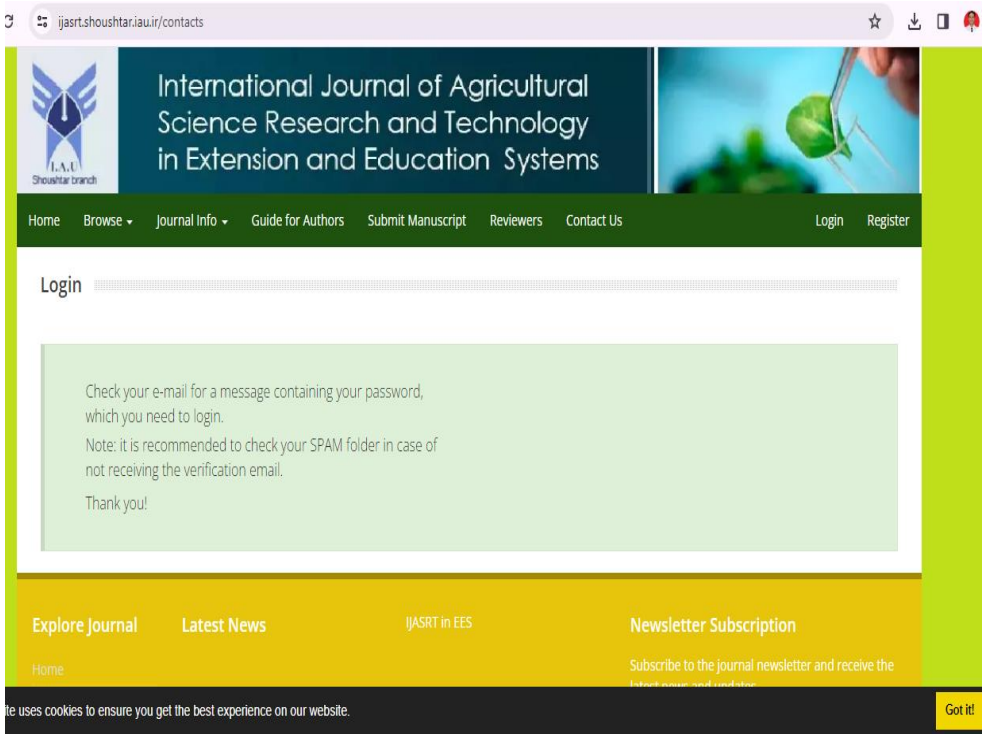
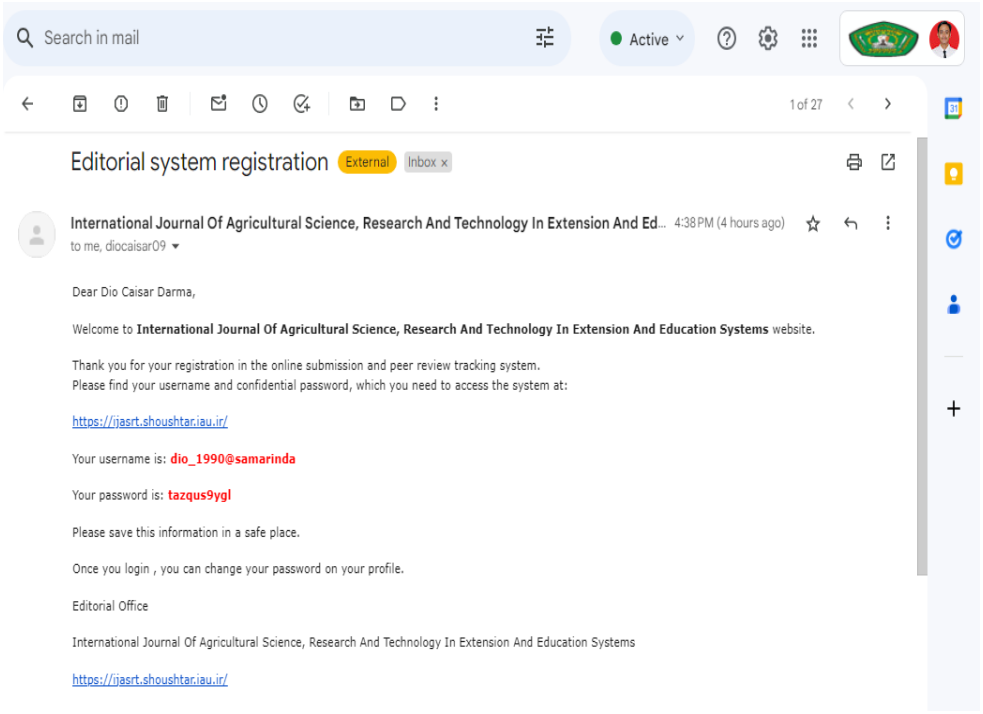
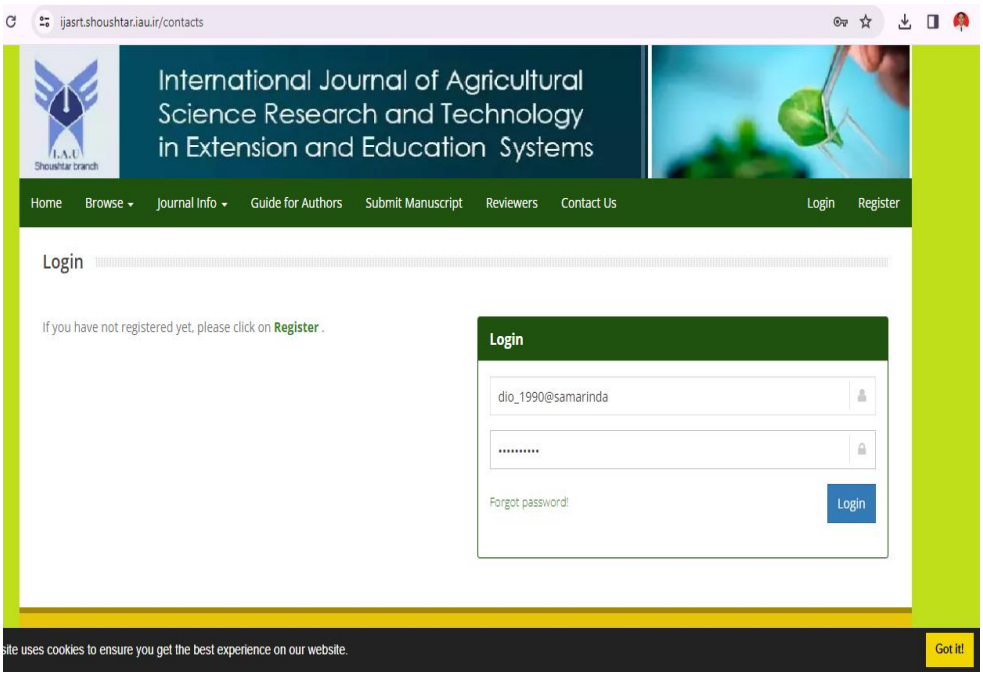
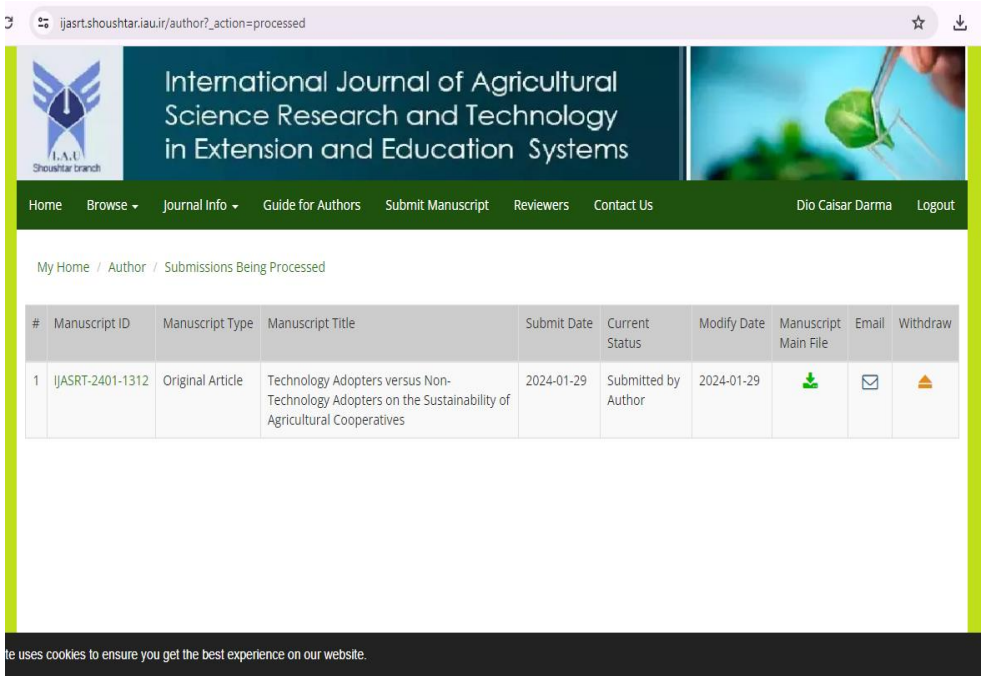

journals.univie.ac.at/registration/send-registration-mail.php
universität wien
OJS-Service
Hosting von Open Access Journals
Thank you for your registration!
The responsible editorial team will inform you after your OJS account has been activated.
(you will receive an e-mail with your login details and can then start your submission).
Please understand that approval may take up to 24 hours.
Back to the journal website

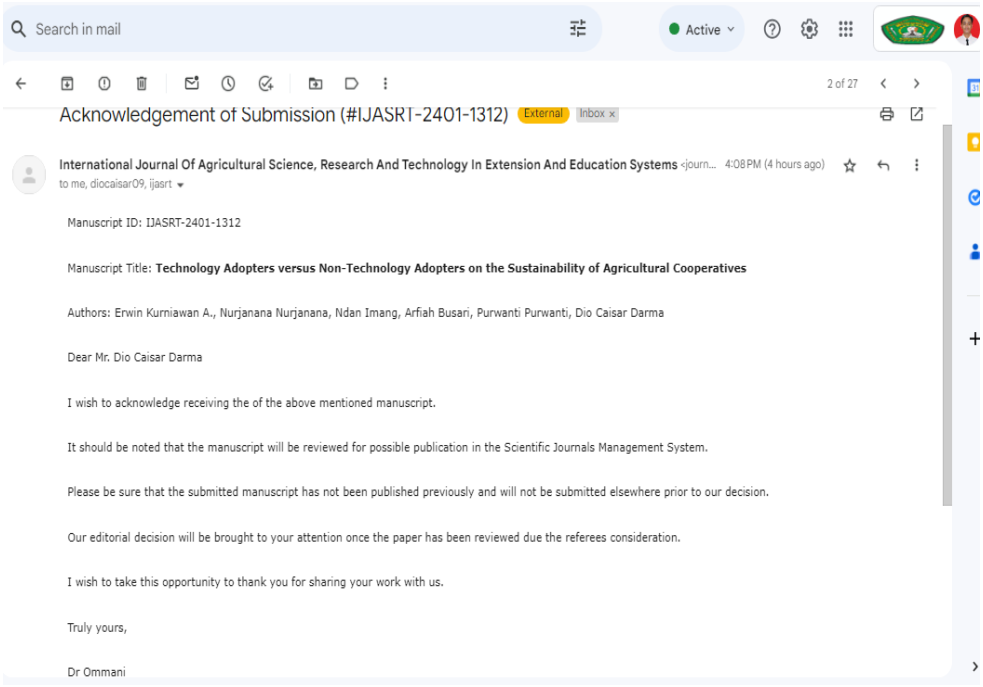

ijasrt.shoushtar.iau.ir/contacts
International Journal of Agricultural Science Research and Technology in Extension and Education Systems
Home
Browse
Journal Info
Guide for Authors
Submit Manuscript
Reviewers
Contact Us
Login
Register
Login
Check your e-mail for a message containing your password, which you need to login.
Note: it is recommended to check your SPAM folder in case of not receiving the verification email.
Thank you!
Explore Journal
Latest News
IJASRT in EES
Newsletter Subscription
Subscribe to the journal newsletter and receive the
te uses cookies to ensure you get the best experience on our website.
Got it!


Search in mail
Active
1 of 27
Editorial system registration
External
Inbox ×
International Journal Of Agricultural Science, Research And Technology In Extension And Ed...
4:38 PM (4 hours ago)
to me, diocaisar09
Dear Dio Caisar Darma,
Welcome to International Journal Of Agricultural Science, Research And Technology In Extension And Education Systems website.
Thank you for your registration in the online submission and peer review tracking system.
Please find your username and confidential password, which you need to access the system at:
https://ijasrt.shoushtar.iau.ir/
Your username is: dio_1990@samarinda
Your password is: tazqus9ygl
Please save this information in a safe place.
Once you login , you can change your password on your profile.
Editorial Office
International Journal Of Agricultural Science, Research And Technology In Extension And Education Systems
https://ijasrt.shoushtar.iau.ir/


ijasrt.shoushtar.iau.ir/contacts
International Journal of Agricultural Science Research and Technology in Extension and Education Systems
Home
Browse
Journal Info
Guide for Authors
Submit Manuscript
Reviewers
Contact Us
Login
Register
Login
If you have not registered yet, please click on Register .
Login
dio_1990@samarinda
Forgot password!
Login
site uses cookies to ensure you get the best experience on our website.
Got it!


ijasrt.shoushtar.iau.ir/author?_action=finish&manu_code=2007628
International Journal of Agricultural Science Research and Technology in Extension and Education Systems
Home
Browse
Journal Info
Guide for Authors
Submit Manuscript
Reviewers
Contact Us
Dio Caisar Darma
Logout
My Home / Author / Finish Submission
Manuscript Approval
Thank you for submitting your manuscript to the journal.
You will receive a letter of confirmation through your email for your manuscript submission.
Author Dashboard
ite uses cookies to ensure you get the best experience on our website.
Got it!


ijasrt.shoushtar.iau.ir/author?_action=processed
International Journal of Agricultural Science Research and Technology in Extension and Education Systems
Home
Browse
Journal Info
Guide for Authors
Submit Manuscript
Reviewers
Contact Us
Dio Caisar Darma
Logout
My Home / Author / Submissions Being Processed
Manuscript ID Manuscript Type Manuscript Title Submit Date Current Status Modify Date Manuscript Main File Email Withdraw
1 IJASRT-2401-1312 Original Article Technology Adopters versus Non-Technology Adopters on the Sustainability of Agricultural Cooperatives 2024-01-29 Submitted by Author 2024-01-29
te uses cookies to ensure you get the best experience on our website.



Search in mail

Active

2 of 27

Acknowledgement of Submission (#IJASRT-2401-1312) External Inbox ×

International Journal Of Agricultural Science, Research And Technology In Extension And Education Systems <journ... 4:08 PM (4 hours ago)

to me, diocaisar09, ijasrt

Manuscript ID: IJASRT-2401-1312

Manuscript Title: **Technology Adopters versus Non-Technology Adopters on the Sustainability of Agricultural Cooperatives**

Authors: Erwin Kurniawan A., Nurjanana Nurjanana, Ndan Imang, Arfiah Busari, Purwanti Purwanti, Dio Caisar Darma

Dear Mr. Dio Caisar Darma

I wish to acknowledge receiving the of the above mentioned manuscript.

It should be noted that the manuscript will be reviewed for possible publication in the Scientific Journals Management System.

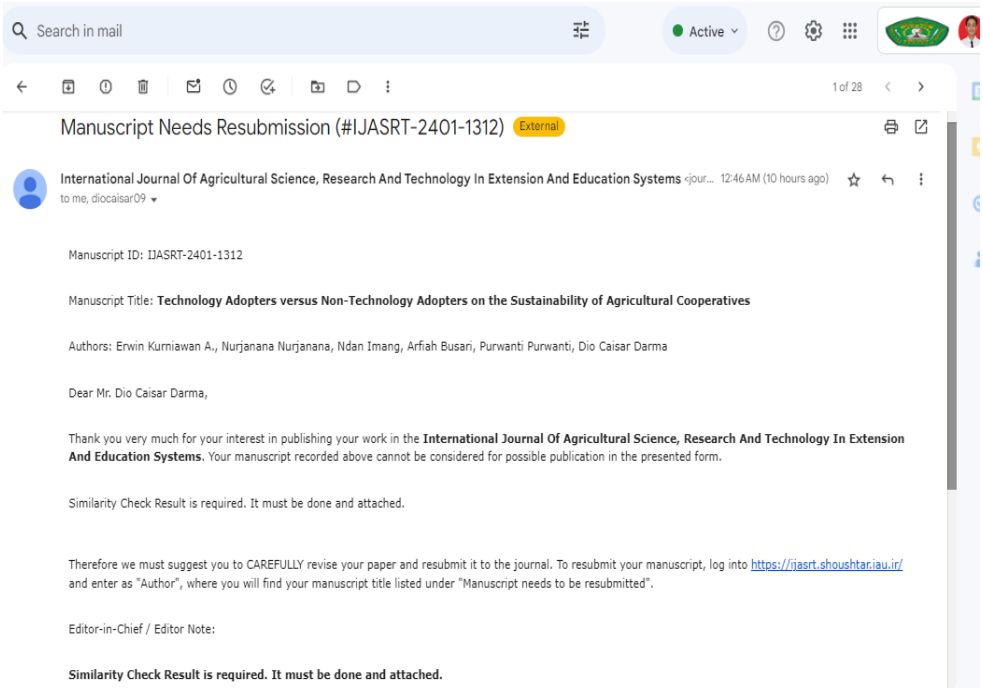
Please be sure that the submitted manuscript has not been published previously and will not be submitted elsewhere prior to our decision.

Our editorial decision will be brought to your attention once the paper has been reviewed due the referees consideration.

I wish to take this opportunity to thank you for sharing your work with us.

Truly yours,

Dr Ommani



Search in mail

Active

1 of 28

Manuscript Needs Resubmission (#IJASRT-2401-1312) External

International Journal Of Agricultural Science, Research And Technology In Extension And Education Systems <jour... 12:46 AM (10 hours ago)

to me, diocaisar09

Manuscript ID: IJASRT-2401-1312

Manuscript Title: **Technology Adopters versus Non-Technology Adopters on the Sustainability of Agricultural Cooperatives**

Authors: Erwin Kurniawan A., Nurjanana Nurjanana, Ndan Imang, Arfiah Busari, Purwanti Purwanti, Dio Caisar Darma

Dear Mr. Dio Caisar Darma,

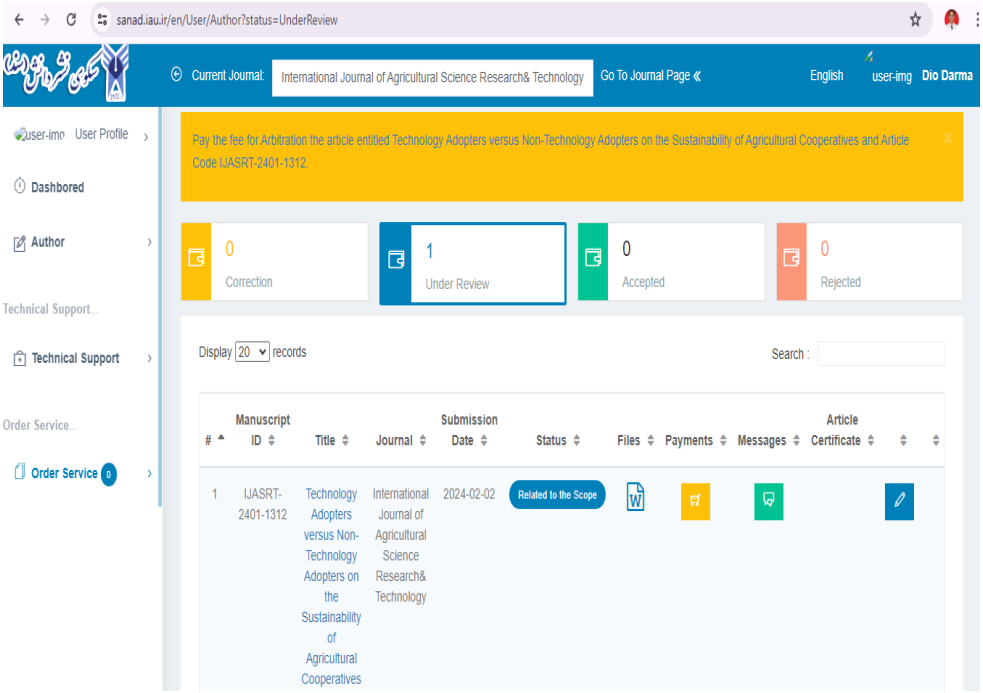
Thank you very much for your interest in publishing your work in the **International Journal Of Agricultural Science, Research And Technology In Extension And Education Systems**. Your manuscript recorded above cannot be considered for possible publication in the presented form.

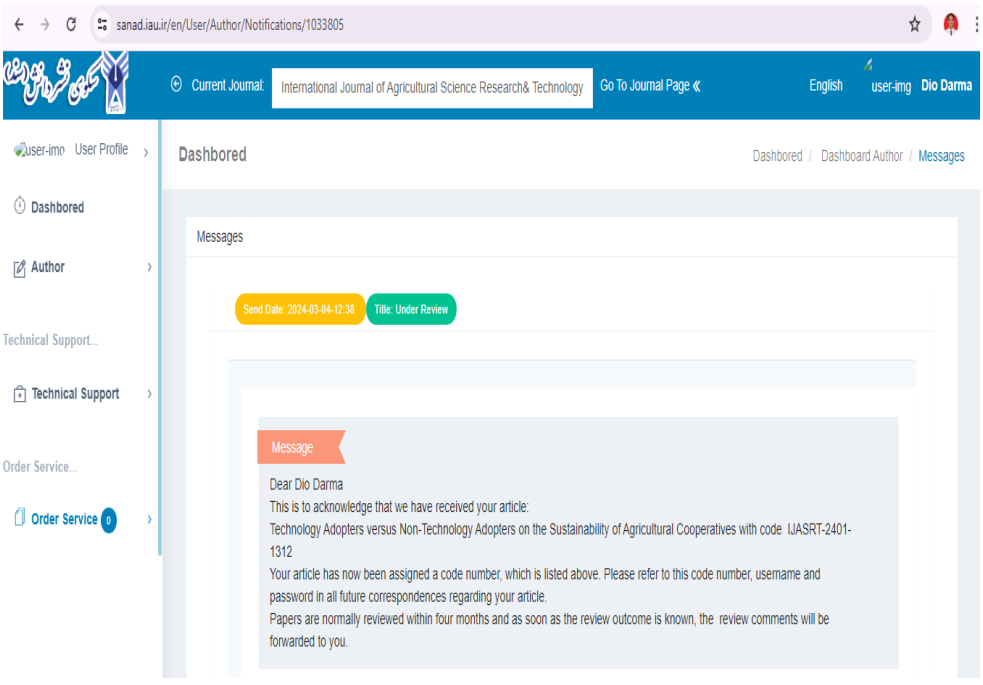
Similarity Check Result is required. It must be done and attached.

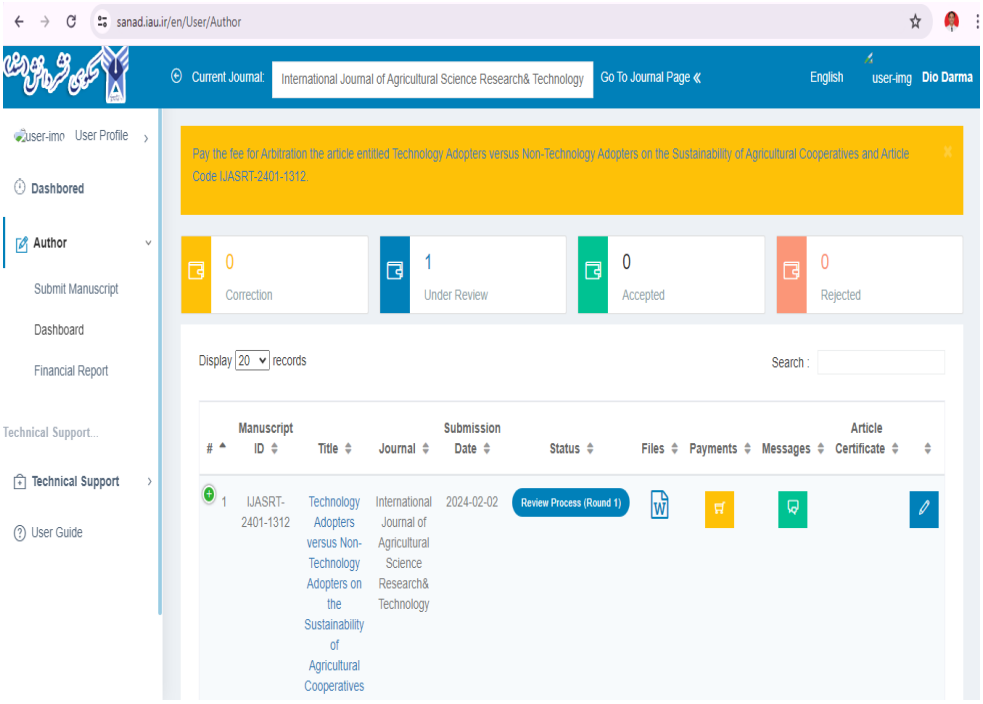
Therefore we must suggest you to CAREFULLY revise your paper and resubmit it to the journal. To resubmit your manuscript, log into https://ijasrt.shoushtar.iau.ir/ and enter as "Author", where you will find your manuscript title listed under "Manuscript needs to be resubmitted".

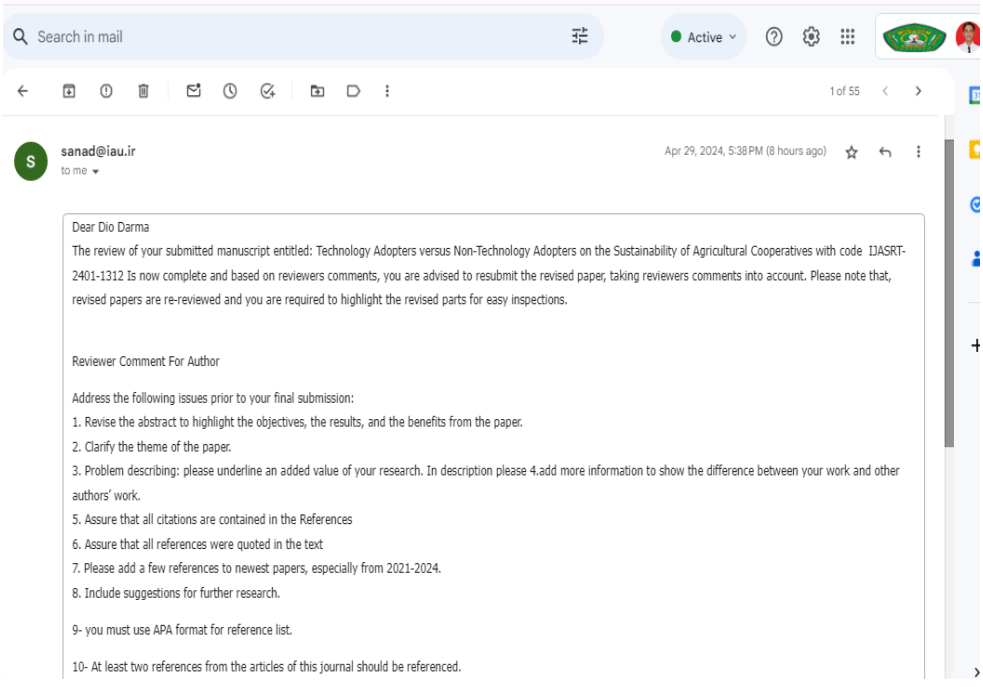
Editor-in-Chief / Editor Note:

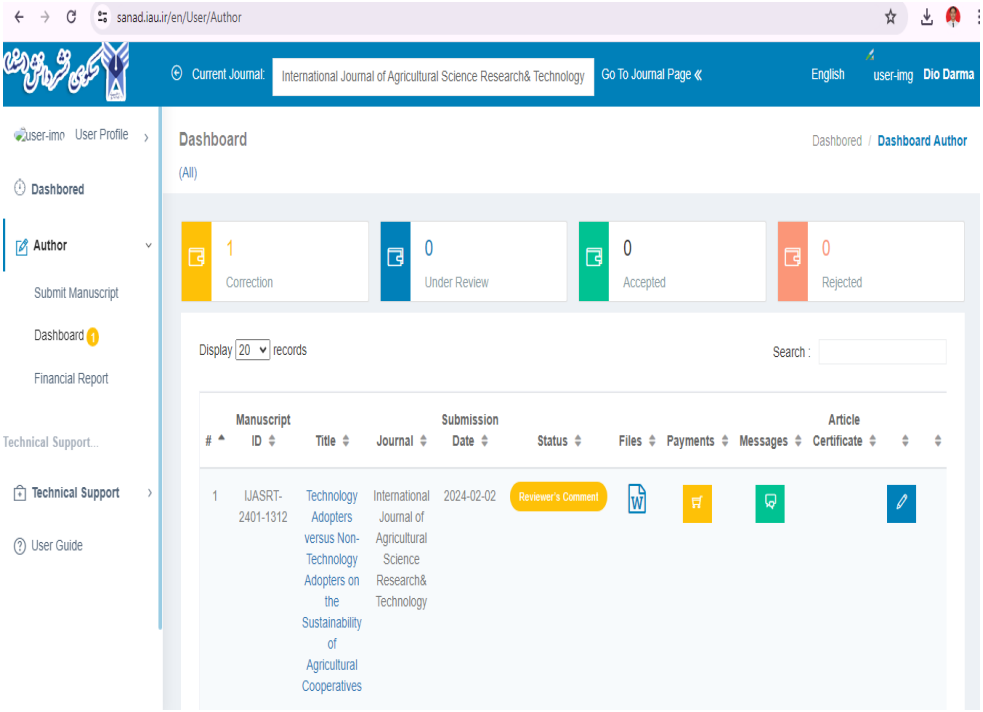
Similarity Check Result is required. It must be done and attached.

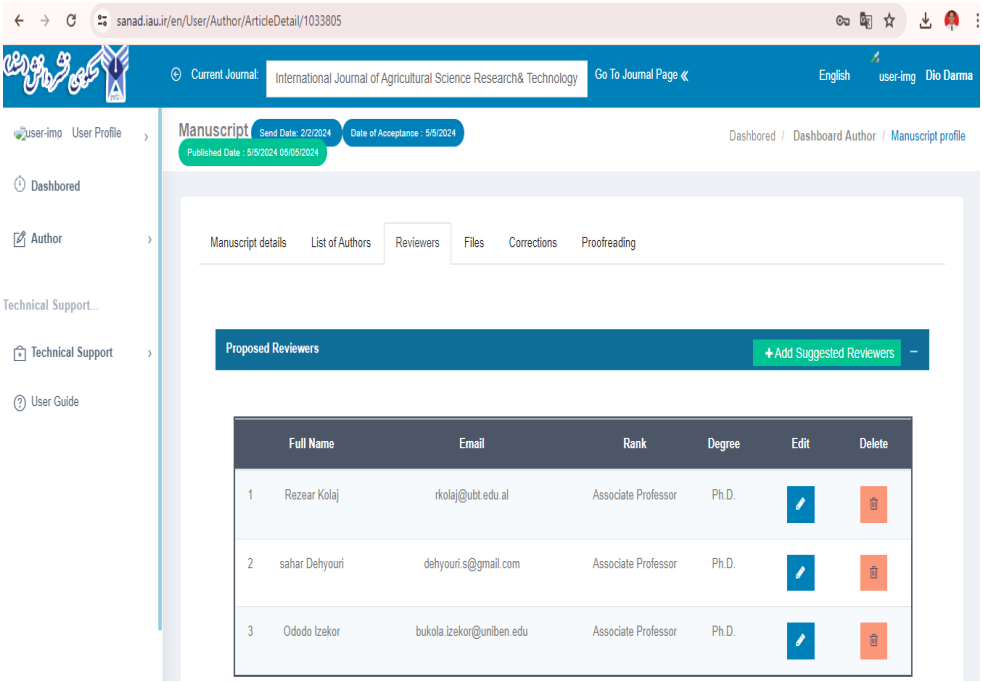

sanad.iau.ir/en/User/Author?status=UnderReview
Current Journal:
International Journal of Agricultural Science Research& Technology
Go To Journal Page
English
user-img
Dio Darma
User Profile
Dashbored
Author
Technical Support...
Technical Support
Order Service...
Order Service
Pay the fee for Arbitration the article entitled Technology Adopters versus Non-Technology Adopters on the Sustainability of Agricultural Cooperatives and Article Code IJASRT-2401-1312.
0
Correction
1
Under Review
0
Accepted
0
Rejected
Display 20 records
Search :
Manuscript ID Title Journal Submission Date Status Files Payments Messages Article Certificate
1 IJASRT-2401-1312 Technology Adopters versus Non-Technology Adopters on the Sustainability of Agricultural Cooperatives International Journal of Agricultural Science Research& Technology 2024-02-02 Related to the Scope

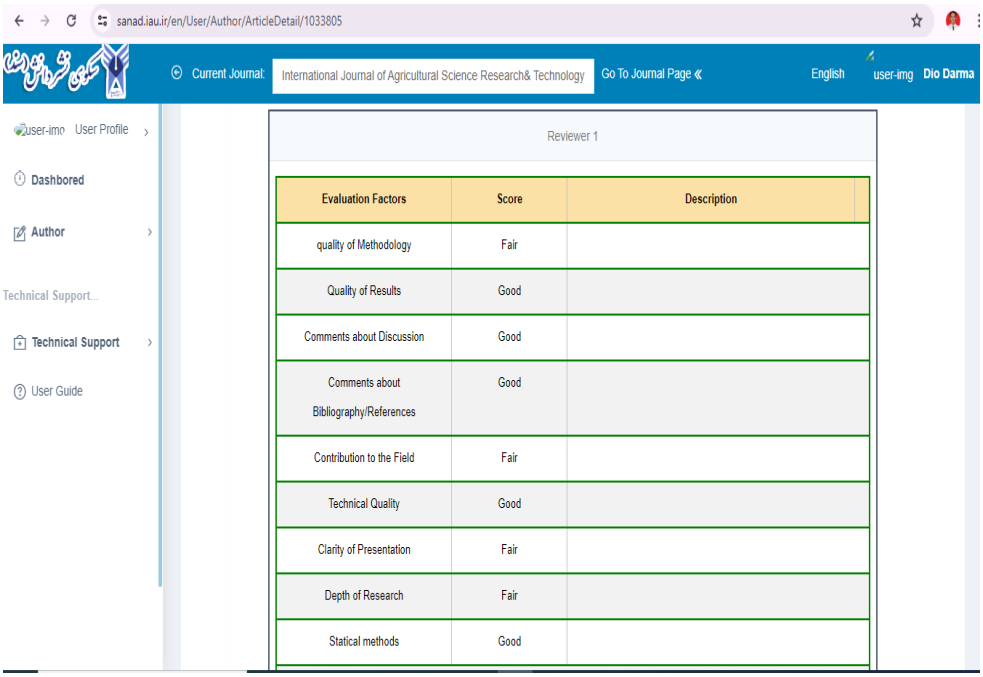

sanad.iau.ir/en/User/Author/Notifications/1033805
Current Journal:
International Journal of Agricultural Science Research& Technology
Go To Journal Page
English
user-img
Dio Darma
User Profile
Dashbored
Author
Technical Support...
Technical Support
Order Service...
Order Service
Dashbored
Dashbored / Dashboard Author / Messages
Messages
Send Date: 2024-03-04-12:38
Title: Under Review
Message
Dear Dio Darma
This is to acknowledge that we have received your article:
Technology Adopters versus Non-Technology Adopters on the Sustainability of Agricultural Cooperatives with code IJASRT-2401-1312
Your article has now been assigned a code number, which is listed above. Please refer to this code number, username and password in all future correspondences regarding your article.
Papers are normally reviewed within four months and as soon as the review outcome is known, the review comments will be forwarded to you.

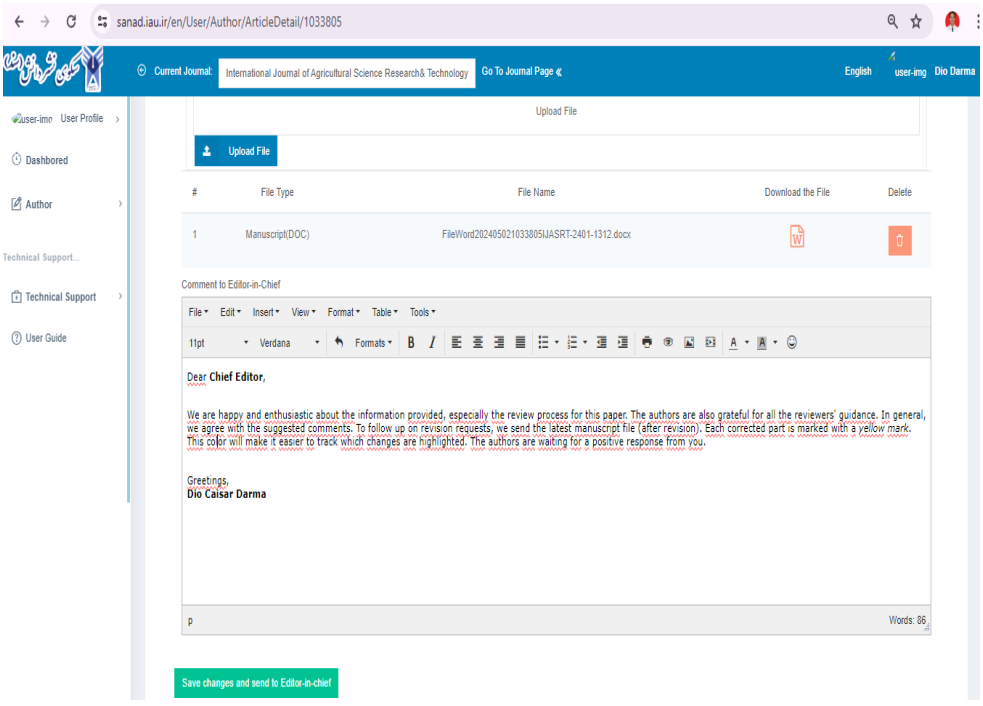

sanad.iau.ir/en/User/Author
Current Journal:
International Journal of Agricultural Science Research& Technology
Go To Journal Page
English
user-img
Dio Darma
User Profile
Dashbored
Author
Submit Manuscript
Dashboard
Financial Report
Technical Support...
Technical Support
User Guide
Pay the fee for Arbitration the article entitled Technology Adopters versus Non-Technology Adopters on the Sustainability of Agricultural Cooperatives and Article Code IJASRT-2401-1312.
0
Correction
1
Under Review
0
Accepted
0
Rejected
Display 20 records
Search :
Manuscript ID Title Journal Submission Date Status Files Payments Messages Article Certificate
1 IJASRT-2401-1312 Technology Adopters versus Non-Technology Adopters on the Sustainability of Agricultural Cooperatives International Journal of Agricultural Science Research& Technology 2024-02-02 Review Process (Round 1)

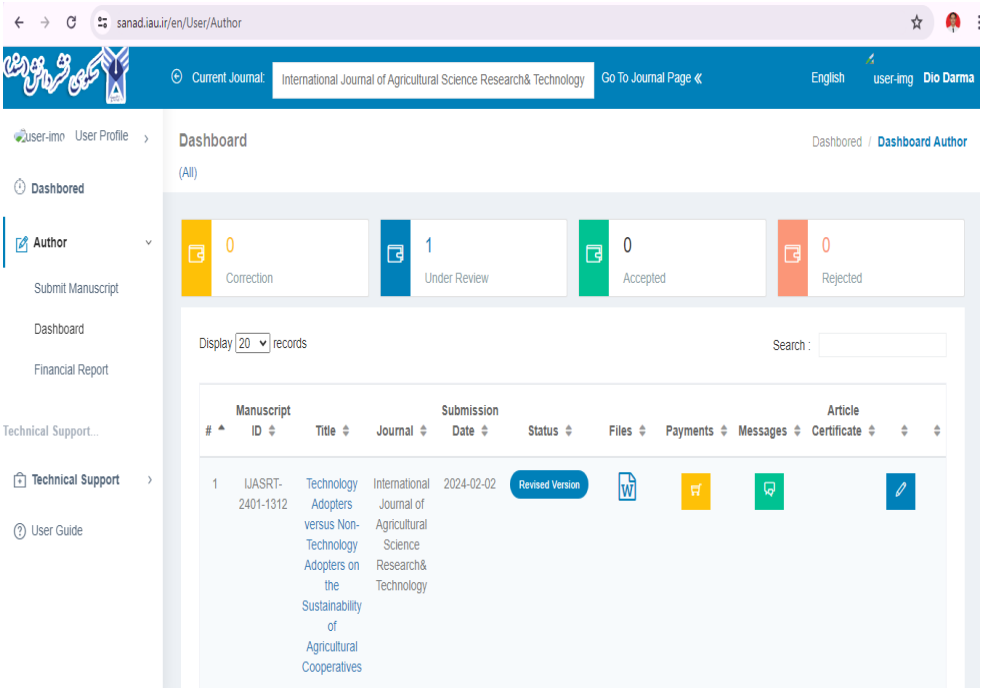

Search in mail
Active
1 of 55
sanad@iau.ir
to me
Apr 29, 2024, 5:38 PM (8 hours ago)
Dear Dio Darma
The review of your submitted manuscript entitled: Technology Adopters versus Non-Technology Adopters on the Sustainability of Agricultural Cooperatives with code IJASRT-2401-1312 Is now complete and based on reviewers comments, you are advised to resubmit the revised paper, taking reviewers comments into account. Please note that, revised papers are re-reviewed and you are required to highlight the revised parts for easy inspections.
Reviewer Comment For Author
Address the following issues prior to your final submission:
1. Revise the abstract to highlight the objectives, the results, and the benefits from the paper.
2. Clarify the theme of the paper.
3. Problem describing: please underline an added value of your research. In description please 4.add more information to show the difference between your work and other authors' work.
5. Assure that all citations are contained in the References
6. Assure that all references were quoted in the text
7. Please add a few references to newest papers, especially from 2021-2024.
8. Include suggestions for further research.
9- you must use APA format for reference list.
10- At least two references from the articles of this journal should be referenced.

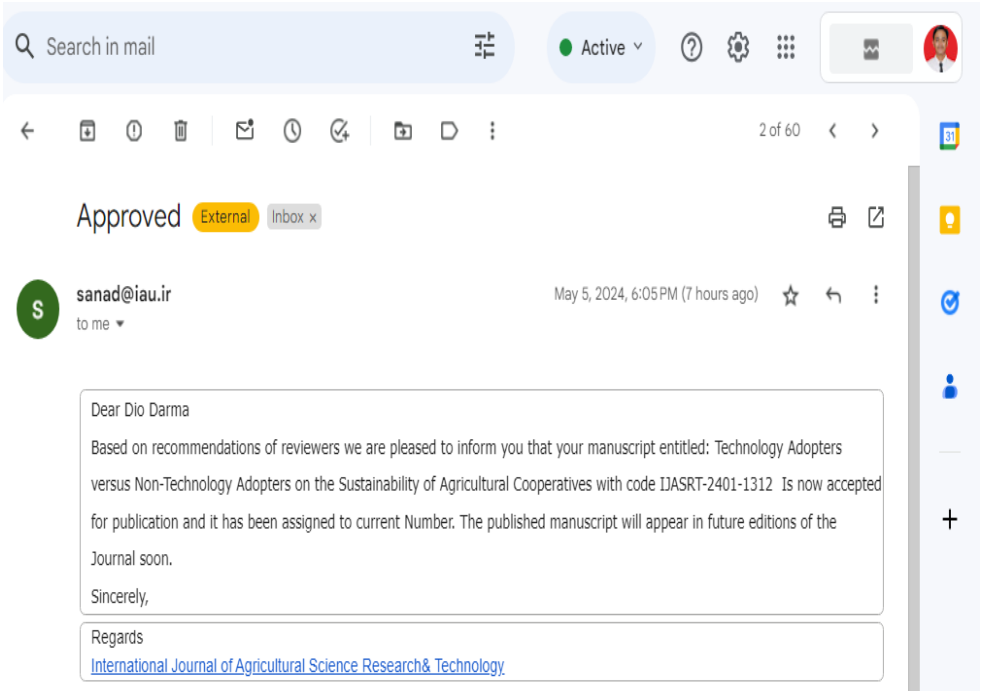

sanad.iau.ir/en/User/Author
Current Journal:
International Journal of Agricultural Science Research& Technology
Go To Journal Page
English
user-img
Dio Darma
User Profile
Dashbored
Author
Submit Manuscript
Dashboard
Financial Report
Technical Support...
Technical Support
User Guide
Dashboard
Dashbored / Dashboard Author
(All)
1
Correction
0
Under Review
0
Accepted
0
Rejected
Display 20 records
Search :
Manuscript ID Title Journal Submission Date Status Files Payments Messages Article Certificate
1 IJASRT-2401-1312 Technology Adopters versus Non-Technology Adopters on the Sustainability of Agricultural Cooperatives International Journal of Agricultural Science Research& Technology 2024-02-02 Reviewer's Comment

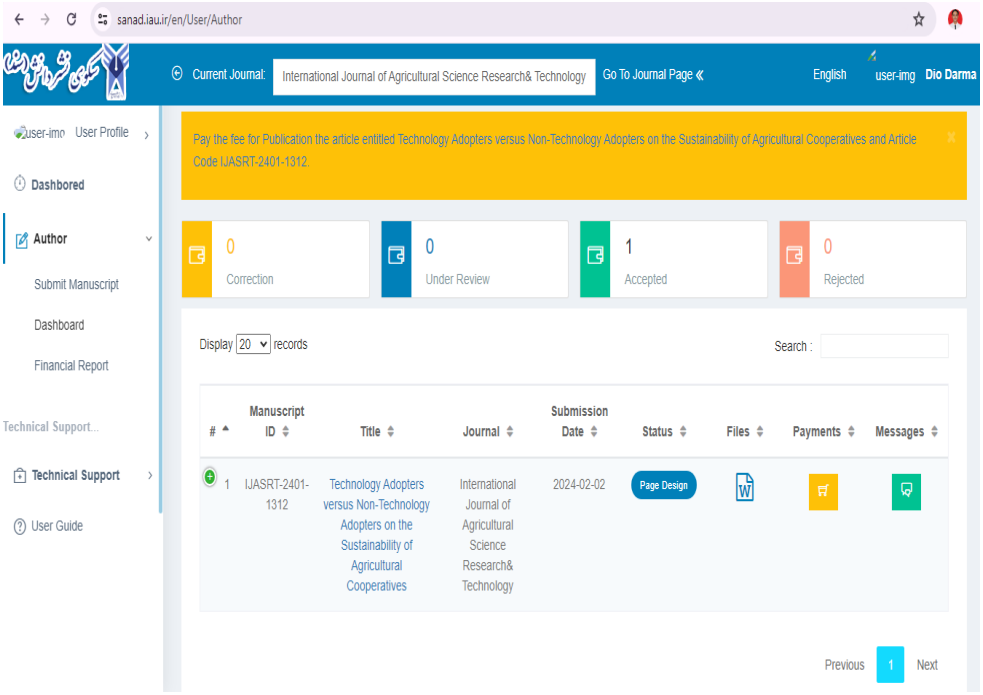

sanad.iau.ir/en/User/Author/ArticleDetail/1033805
Current Journal:
International Journal of Agricultural Science Research& Technology
Go To Journal Page
English
user-img
Dio Darma
User Profile
Dashbored
Author
Technical Support...
Technical Support
User Guide
Manuscript
Send Date: 2/2/2024
Date of Acceptance : 5/5/2024
Published Date : 5/5/2024 05/05/2024
Dashbored / Dashboard Author / Manuscript profile
Manuscript details
List of Authors
Reviewers
Files
Corrections
Proofreading
Proposed Reviewers
+Add Suggested Reviewers
Full Name Email Rank Degree Edit Delete
1 Rezear Kolaj rkolaj@ubt.edu.al Associate Professor Ph.D.
2 sahar Dehyouri dehyouri.s@gmail.com Associate Professor Ph.D.
3 Ododo Izekor bukola.izekor@uniben.edu Associate Professor Ph.D.

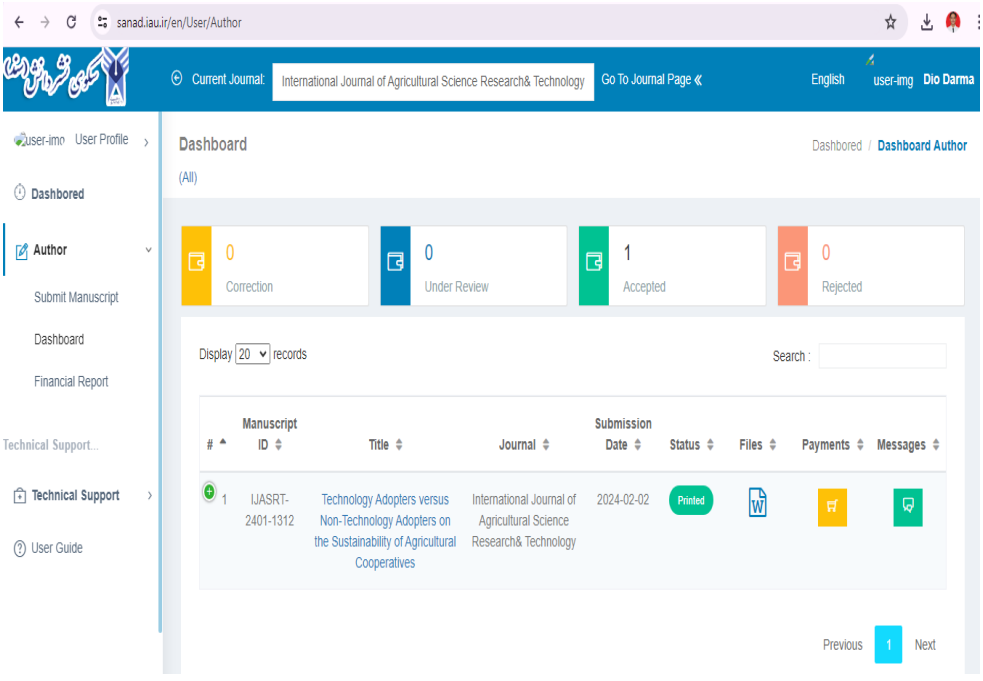

sanad.iau.ir/en/User/Author/ArticleDetail/1033805
Current Journal:
International Journal of Agricultural Science Research& Technology
Go To Journal Page
English
user-img
Dio Darma
user-img User Profile
Dashbored
Author
Technical Support...
Technical Support
User Guide
Reviewer 1
Evaluation Factors
Score
Description
quality of Methodology
Fair
Quality of Results
Good
Comments about Discussion
Good
Comments about Bibliography/References
Good
Contribution to the Field
Fair
Technical Quality
Good
Clarity of Presentation
Fair
Depth of Research
Fair
Statical methods
Good


sanad.iau.ir/en/User/Author/ArticleDetail/1033805
Current Journal:
International Journal of Agricultural Science Research& Technology
Go To Journal Page
English
user-img
Dio Darma
user-img User Profile
Dashbored
Author
Technical Support...
Technical Support
User Guide
Upload File
Upload File
#
File Type
File Name
Download the File
Delete
1
Manuscript(DOC)
FileWord20240502103380SIJASRT-2401-1312.docx
Comment to Editor-in-Chief
File
Edit
Insert
View
Format
Table
Tools
11pt
Verdana
Formats
Dear Chief Editor,
We are happy and enthusiastic about the information provided, especially the review process for this paper. The authors are also grateful for all the reviewers' guidance. In general, we agree with the suggested comments. To follow up on revision requests, we send the latest manuscript file (after revision). Each corrected part is marked with a yellow mark. This color will make it easier to track which changes are highlighted. The authors are waiting for a positive response from you.
Greetings,
Dio Caisar Darma
p
Words: 86
Save changes and send to Editor-in-chief


sanad.iau.ir/en/User/Author
Current Journal:
International Journal of Agricultural Science Research& Technology
Go To Journal Page
English
user-img
Dio Darma
user-img
User Profile
Dashbored
Author
Submit Manuscript
Dashboard
Financial Report
Technical Support...
Technical Support
User Guide
Dashboard
Dashbored / Dashboard Author
(All)
0
Correction
1
Under Review
0
Accepted
0
Rejected
Display 20 records
Search :
Manuscript ID Title Journal Submission Date Status Files Payments Messages Article Certificate
1 IJASRT-2401-1312 Technology Adopters versus Non-Technology Adopters on the Sustainability of Agricultural Cooperatives International Journal of Agricultural Science Research& Technology 2024-02-02 Revised Version


Search in mail
Active
2 of 60
Approved
External
Inbox x
sanad@iau.ir
to me
May 5, 2024, 6:05 PM (7 hours ago)
Dear Dio Darma
Based on recommendations of reviewers we are pleased to inform you that your manuscript entitled: Technology Adopters versus Non-Technology Adopters on the Sustainability of Agricultural Cooperatives with code IJASRT-2401-1312 Is now accepted for publication and it has been assigned to current Number. The published manuscript will appear in future editions of the Journal soon.
Sincerely,
Regards
International Journal of Agricultural Science Research& Technology


sanad.iau.ir/en/User/Author
Current Journal:
International Journal of Agricultural Science Research& Technology
Go To Journal Page
English
user-img
Dio Darma
User Profile
Dashbored
Author
Submit Manuscript
Dashboard
Financial Report
Technical Support...
Technical Support
User Guide
Pay the fee for Publication the article entitled Technology Adopters versus Non-Technology Adopters on the Sustainability of Agricultural Cooperatives and Article Code IJASRT-2401-1312.
0
Correction
0
Under Review
1
Accepted
0
Rejected
Display 20 records
Search :
Manuscript ID Title Journal Submission Date Status Files Payments Messages
1 IJASRT-2401-1312 Technology Adopters versus Non-Technology Adopters on the Sustainability of Agricultural Cooperatives International Journal of Agricultural Science Research& Technology 2024-02-02 Page Design
Previous 1 Next


sanad.iau.ir/en/User/Author
Current Journal:
International Journal of Agricultural Science Research& Technology
Go To Journal Page
English
user-img
Dio Darma
User Profile
Dashbored
Author
Submit Manuscript
Dashboard
Financial Report
Technical Support...
Technical Support
User Guide
Dashboard
(All)
Dashbored / Dashboard Author
0
Correction
0
Under Review
1
Accepted
0
Rejected
Display 20 records
Search :
Manuscript ID Title Journal Submission Date Status Files Payments Messages
1 IJASRT-2401-1312 Technology Adopters versus Non-Technology Adopters on the Sustainability of Agricultural Cooperatives International Journal of Agricultural Science Research& Technology 2024-02-02 Printed
Previous 1 Next

New attention

Dio Caisar Darma, S.E., M.Si <diocaisardarma@feb.unmul.ac.id> Tue, May 14, 3:15 AM (1 day ago)
to OMMANI75451, ijasrt

Dear **Editor-in-Chief**,

I am Dio Caisar Darma. I hope you are in a good condition. Through this email, my fellow authors and I would like to confirm that the article entitled "T*echnology Adopters versus Non-Technology Adopters on the Sustainability of Agricultural Cooperatives*" with ID: *2401-1312* has undergone changes in content after the review process. The section that is revised is not only the title, but is related to several sections in the paper. You can check again from the last corrected file according to the reviewer's directions, comments and suggestions (attached). In addition, the authors wanted to ensure that changes in some parts of the manuscript could be adjusted post-review. Furthermore, we leave all these decisions to the editor. We hope you can understand. Thank you for your help.

Sirecenly,
Dio Caisar Darma

One attachment • Scanned by Gmail

Article Acceptance Certificate

International Journal Of Agricultural Science, Research And Technology In Extension And Education Systems

This certifies the article entitled **Technology Adopters versus Non-Technology Adopters on the Sustainability of Agricultural Cooperatives** (Code IJASRT-2401-1312)on the Date 05.05.2024 By **Erwin Kurniawan A.,Nurjanana Nurjanana,Ndan Imang,Arfiah Busari,Purwanti Purwanti,Dio__Caisar__Darma Dio__Caisar__Darma** has been written.

Journal Editor-in-Chief International Journal Of Agricultural Science, Research And Technology In Extension And Education Systems

Bahman Khosravipour

Article Publication Certificate

International Journal Of Agricultural Science, Research And Technology In Extension And Education Systems

Certificate of acceptance for the manuscript titled :

Technology Adopters versus Non-Technology Adopters on the Sustainability of Agricultural Cooperatives

on the Date 05.05.2024

Authored by:

Erwin Kurniawan A.,Nurjanana Nurjanana,Ndan Imang,Arfiah Busari,Purwanti Purwanti,Dio__Caisar__Darma Dio__Caisar__Darma

has been accepted in International Journal Of Agricultural Science, Research And Technology In Extension And Education Systems

J ır-in-Chief International Journal Of Agricultural Science, Research And Technology In Extension And Education Systems

Bahman Khosravipour

scholar.google.com/citations?user=5eHx7wUAAAAJ&hl=en

Scholar

International Journal of Agricultural Science, Research and Technology IJASRT in EES

FOLLOW

Islamic Azad University, Shoushtar Branch
Verified email at iau-shoushtar.ac.ir - Homepage

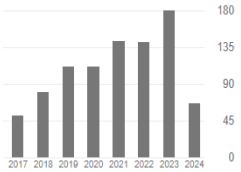
IAU Agricultural Extension Agricultural Education Rural and Agricultural Soci...
IT in Agriculture IJASRT in EES

GET MY OWN PROFILE

TITLE	CITED BY	YEAR
Optimization of culture conditions for keratinase production in Streptomyces sp. JRS19 for chick feather wastes degradation T Jayalakshmi, P Krishnamoorthy, G Ramesh Kumar, P Sivamani International Journal of Agricultural Science, Research and Technology in ...	45	2011
Agricultural inputs subsidy in Nigeria: an overview of the Growth Enhancement Support Scheme (GESS). A Michael, AK Tashikalma, DC Maurice Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis 66 (3)	43	2018
Marketing performance of salad vegetables: the case of cabbage marketing in Abia state, Nigeria O CK, N F C, I JC, U SC, U CI International Journal of Agricultural Science, Research and Technology in ...	28	2014
Distribution and importance of wheat and barley diseases in Tunisia, 1989 to 1991. M Cherif, M Harrabi, H Morjane Rachis 13 (1/2), 25-34	25	1994
Effect of urbanization on agricultural production in Abia State OR Iheke, U Ihuoma International Journal of Agricultural Science, Research and Technology in ...	23	2016

Cited by VIEW ALL

	All	Since 2019
Citations	1034	754
h-index	15	11
i10-index	24	14



Co-authors VIEW ALL

SHAIBU Ufedo Monday
Kogi State University

Azadeh N. Noorivandi
Assistant Professor Islamic Azad...

ezb.uni-regensburg.de/searchres.phtml?bibid=UBR&colors=7&lang=en&jq_type1=KT&jq_term1=International+Journal+of+Agricultural+Science%2C+Resear...

1 hits
Refine search

International Journal of Agricultural Science, Research and Technology in Extension and Education Systems (IJASRT in EES)

Online Availability: Fulltext freely available

To the fulltexts: Vol. 1 (2011) – ...

General information on the online edition:

Title:	International Journal of Agricultural Science, Research and Technology in Extension and Education Systems (IJASRT in EES)
Publisher / Provider:	Department of Agricultural Management, Islamic Azad University, Iran Search publishers open access policy in SHERPA/RoMEO
Subject(s):	Agriculture and Forestry, Horticulture, Nutritional and Domestic Science
Keyword(s):	Allgemeine Agrarwissenschaften
E-ISSN(s):	2251-7596
P-ISSN(s):	2251-7588
ZDB-Number:	2851899-8
Title history:	2682905-8 in the period: 1.2011 - 2.2012,3 International Journal of Agricultural Science, Research and Technology 2851899-8 in the period: Volume 2, issue 4 (2012)- International journal of agricultural science, research and technology in extension and education systems
Fulltext online since:	Jg. 1 (2011)
Homepage(s):	http://ijasrt.iau-shoushtar.ac.ir/
Type of Appearance:	Fulltext, online only
Price for reading access:	free of charge
Annotation:	Englisch

Technology Adopters versus Non-Technology Adopters on the Sustainability of Agricultural Cooperatives (A Case from East Kutai Regency Scale, Indonesia)
Uncovering the Sustainability of Agricultural Cooperatives in East Kutai, Indonesia

Abstract: This research aims to investigate the causality between access to computers (AC), internet networks (IN), digital administration skills (DAS), and financial literacy (FL) on profits (PFT). This study's objectivity compares agricultural cooperatives that adopt technology with adopt non-technology. Secondary data was explored to analyze the performance of active agricultural cooperatives which are partners of the East Kutai Regency government.Using panel data regression from eighteen sub-districts in East Kutai, it is proven that technology adopting agricultural cooperatives were more prominent than non-technology adopting agricultural cooperatives during 2017–2022. However, there is a harmony in the statistical findings from both observations (agricultural cooperatives that adopt technology and non-adopters of technology), where access to computers and financial literacy both have a significant effect on profits. Other analysis results show that internet networks and digital administration skills have an insignificant impact on profits. The study's implications provide valuable output for the future sustainability of agricultural cooperatives. The success of agricultural cooperatives depends greatly on the effectiveness of the application of technology. Through this research, it is hoped that it can provide open space for academic, managerial and policy-making development to restructure the agricultural cooperative system, especially optimizing internet networks and administrative skills.

Keywords: Agricultural cooperatives, Technology adopters, Non-technology adopters, Panel data regression

Comment [i-[1]: It seems that the topic isn't coordinated with the notion of the article. The topic should be changed.

Reply: Clear, fixed.

Comment [i-[2]: Revise the abstract to highlight the objectives, the results, and the benefits from the paper.

Reply: The abstract has been corrected according to the reviewer's recommendations. This current abstract view summarizes in the paper's aims, results, and benefits succinctly. The initial sentence which provides the background to the study objectives is moved to the introduction.

Comment [i-[3]: Study's objectivity.

Reply: Revised.

Comment [i-[4]: The result shows that among the 4 variables that you tested, 2 of them were effective and 2 others didn't have an effect on the profit, but the overall result had a bias to the effective variable.

Reply: Dear reviewers, the authors conceptualized and designed hypotheses to be tested empirically. Even though the results did not meet expectations, there are several things that need to be highlighted to improve further studies. Although both areas of agricultural cooperatives (technology adopters and non-technology adopters) have the same implications, where the internet network and digital administration skills do not increase profits significantly, but this indicates that there is a need for practical policies in managing the agricultural cooperative system.

1. Introduction

In the 21st century, technology plays a vital role in human routines, especially regarding the economic landscape (Ahmad et al., 2023; Haff, 2014). The focus of technology is not only limited to increasing economic added value but also functions as a channel of insight, developing productivity, building interaction, and integrating work that was previously classified as conventional into modern (Haleem et al., 2022; Hoehe & Thibaut, 2020; Tripathi, 2017). According to Arts et al. (2021), Diraco et al. (2023), Lind et al. (2019), and Roztocki et al. (2019), with technological advances, humans receive greater utility than previous civilizations, where at that time technology was not so massive and was considered expensive.

Nowadays, with the advent of technological sophistication, humans are faced with choices (Kurniawan et al., 2023). First, the option to adapt and become an integral part. In this phase, humans start their daily activities by studying, correcting existing weaknesses, carrying out evaluations, and considering their position in the technological age. Thus, the decision-making process is identified and explored first based on a network of machines correlated with technology. Second, the option to fully accommodate all work equipment with technological facilities. In this stage, various information is filtered to design a work plan that is classified as essential. Third, a moderate situation where it does not always depend on technology, so technology is only emphasized in some professions and the rest still empowers human power in producing services or goods. For the third reason, humans are either subjects or are assumed to be objects of technology. In other words, humans can control technology and are not completely the target of a scenario that only cares about profits from technology without thinking about the fate of humans in the future. Fourth, the traditional cycle rejects the function of technology. Acceptance of technology is urgent. However, in the fourth pattern, technology is predicted by some people to only add new polemics. Interestingly, not all items of technology can replace humans. In several places, Kurt & Gök (2015), Liu (2022), and Nabela & Rianto (2020) reveal that the pillars of technology can actually damage traditions and culture, including shifts in human interactions, social relationships, communication, and individual morals and ethics.

When talking about economic competition, one of the advantages and competitiveness of business is reflected in its technological determination. Take the example of cooperatives as micro and medium-scale business clusters that have contributed to the economy across nations (Bharti, 2021; Mhembwe & Dube, 2017). Going back several decades, starting with Indonesia's independence reforms. The concept of cooperatives as a foundation in the people's economy, which was championed by one of the nation's founding figures, namely Mohammad Hatta, who was called the "Father of Cooperatives", initiated a type of business that allows all levels of the sector to move small production units in a sustainable direction (Halilintar, 2018; Maskur, 2016; Pulungan & Sardjono, 2021). At the moment when Indonesia was separated from Japanese colonial rule, trade was only controlled by the majority of big businessmen with a commercial sharing agreement with the Japanese government, but this only benefited some parties and was detrimental to the indigenous people. At that time, the expansive exploitation of natural resources without partnering with local businesses or employing Indonesian citizens spurred a new, more impressive understanding through the implementation of cooperatives. Although initially there were only two types of cooperatives, namely consumer cooperatives and producer cooperatives, at the beginning of their journey, currently they are increasingly developing along with the optimization of financial

structures, such as service cooperatives, marketing cooperatives, multi-business cooperatives, and savings and loan cooperatives (Kusmiati et al., 2023).

In accordance with their names, the six cooperatives have different terminology. Consumer cooperatives are aimed at trading goods and services. In essence, consumer cooperatives are set up to provide goods and trade transactions. Institutionally, consumer cooperatives are implemented via business entities managed by cooperative members to sell various basic necessities to consumers. The vision of the producer cooperative is to compile a product from cooperative members at an affordable cost or below the average price from re-sellers for the members' needs. In principle, producer cooperatives focus on passing on local product wisdom from cooperative members to other cooperative members. In this perspective, producer cooperatives are built to provide services and distribute products to members to help household economic levels, making it easier and guaranteeing that they can create production inputs and market products efficiently (Wijaya & Kurniawan, 2022).

Furthermore, service cooperatives are instructed to engage in service activities. It's the same as a consumer cooperative, but what this cooperative prioritizes is service for its members. Examples are insurance service cooperatives, transportation services, credit services, and so on. On the one hand, marketing cooperatives are prioritized to accommodate products produced by cooperative members and market them to consumers. Members act as product suppliers to marketing cooperatives. Another unique thing about multi-business cooperatives is that they operate in more than one unit or field, including product marketing, savings and loans, distribution of production facilities, and production operations. Then, the system in savings and loan cooperatives is centered on microfinance institutions that provide capital loans to cooperative members (Ogah et al., 2020). Savings and loan cooperatives have the status of non-bank financial institutions whose business is supported by taking savings from all members and providing capital loans to cooperative members who need business investment. Apart from that, collecting funds in cooperatives with this concept takes the form of member contributions and savings, which are mandatory for each scheduled period. What the six cooperatives have in common is that the capital is sourced from the cooperative members or cooperative owners, involves all stakeholders involved in the cooperative to make policies, shares profits, and the main motive is rooted in the welfare of the members with a foundation of justice.

Comment [i-[5]: Reference?

Reply: We added one citation (ie. Wijaya & Kurniawan, 2022).

Comment [i-[6]: Is it the problem statement? It isn't acceptable as the summing up of the introduction.

Reply: This paragraph is not a statement of the problem, or a conclusion, but rather a brief explanation of the types of cooperatives in Indonesia. The main problem, formulation, objectives and contributions of the research are developed in Sub-Chapters 1.1 (Existing Situation) and 1.2 (Research Motivation).

1.1 Existing Situation

Apart from the role of small and medium enterprises (SMEs), history records that cooperatives were also the sector that was most resilient to the monetary crisis in 1997–1998 (Yuhertiana et al., 2022; Wulandhari et al., 2022). The rational reason behind the cooperative intensity of economic turbulence is independence. Trisniarti et al. (2022) explained that the existence of cooperatives until now is due to the fact that the majority of production raw materials and labor use local resources. Similar to SMEs, cooperative assets are also based on the micro, small, and medium scale, so external disturbances such as political shocks do not completely hit cooperatives. This is different from companies that employ many employees (in this case, including foreign workers) with large capital flows and are oriented towards high profits compared to the smaller number of administrators or investors in cooperatives with an even distribution of profits (Alizadehnia et al., 2022). The specific specialty of the two businesses above also lies in taxes. The tax factor is an important differentiator in mapping goals and values between cooperatives and companies.

In the case of Indonesia, cooperatives have saved the fate of several people by absorbing workers to be trained, coached, and educated, so they can manage cooperatives skillfully. Social capital in institutions binds cooperative members who, at any time, bear the burden of losses or profits collectively. Agricultural cooperatives are grouped into commodity cooperatives. Definitively, Candemir et al. (2021), Leite et al. (2021), Tortia et al. (2013), and Zhang et al. (2021) articulate agricultural cooperatives as a type of cooperative that explores natural resources directly without or with minimal extraction of natural resources. Agricultural cooperatives process primary natural resources, including plantation crops, livestock, fisheries, forestry, and food crops. The forms of agricultural cooperatives include consumer cooperatives, producer cooperatives, service cooperatives, marketing cooperatives, multi-business cooperatives, and savings and loan cooperatives, depending on their respective capacities. The presence of agricultural cooperatives cannot be separated from agricultural economic trends. Each agricultural cooperative has the autonomy granted by the competent authority to carry out organizational activities, opportunities, strategies, and missions according to the characteristics of each region. Basically, members are guided by the regulations prepared by the cooperative legal entity or established by individuals, with the separation of the members' assets as the main capital. In practice, Indonesian agricultural cooperatives have a dominant member composition consisting of the Association of Farmer Groups (GAPOKTAN) which are both mediated by farming institutions in rural areas to carry out entrepreneurship, including marketing of produce and processing units, providing production facilities, and channeling capital.

In the midst of a rapidly disruptive era, it is spurring many business elements to make changes. Often, understanding technology has a different narrative for realizing or resolving uncertainty in the field. This also happens to agricultural cooperatives. In reality, many agricultural cooperatives still have difficulty contextualizing technology when diagnosing new challenges (Anh, 2022; Jia et al., 2023; Liu et al., 2022; Luo et al., 2017; Moral & Uclés, 2022). This situation creates a dilemma. First, digitalization opens up a flow so fast that it requires improvements in supporting infrastructure. Inequality in the financial dimension has an impact on obstacles to network equality. Second, the cooperative data

recording and storage system is not optimal, which is triggered by low literacy regarding applications and programs connected to one database. Third, classic conditions in internal cooperative management prepare human resources to find new breakthroughs in more transformative technology. Fourth, weak regulations that support business partnerships, including external supervision through computerization to ensure the security of cooperative data.

1.2 Research Motivation

Ideally, with Indonesian agricultural cooperatives entering their seventh decade, there should be no serious obstacles to the use of technology. This is considering that Indonesia is a developing market with bright prospects, including the government's initiative in providing technological infrastructure. At the same time, agricultural cooperatives are required to commit to increasing competence. One of them is technological acceleration. So far, among the latest topics that highlight the link between technology and non-technology adoption on the performance of agricultural cooperatives are discussed. According to the paper presented by Zhang et al. (2020) regarding the expansion of technology adoption in Sichuan (China), which is still unclear, the application of post-harvest and production technology causes a decline in the prosperity of agricultural cooperative members. Then, observations on household farmers in Ethiopia showed that cooperatives that prioritize agricultural technology through extension services have grown the experience, participation, and leadership of their members (Abebaw & Haile, 2013). The investigation of Yang et al. (2021) concluded that farmers who are members of agricultural cooperatives as technology adopters and non-adopters of technology to increase agricultural profits in China tend to be more dominated by farmers with low incomes than farmers with high incomes. On the other hand, small farmers in developing countries like Indonesia are determined by certain local conditions and needs. The low level of diversification in the Indonesian agricultural sector is caused by technology adoption, institutional structure, farmer characteristics, and business channels (Suprehatin, 2021). A recent study by Khan et al. (2022) estimates the quality of technology application in supporting agricultural cooperatives in Pakistan. The use of technology to increase agricultural income has exceeded expectations and is gradually being applied in Pakistan to reduce poverty. The final implication is that farmers with low incomes who are part of agricultural cooperatives by adopting technology actually have a better effect on agricultural income than farmers with high incomes who are non-technology adopters.

In the current situation, the world is busy with technological advances, including Indonesia. Since its arrival, many business fields have competed with each other to take part as technology users. One business sector that cannot be separated from technological support is cooperatives. On the other hand, some cooperatives in the developing phase experience technological lag. At the same time, East Kutai Regency, which is the agricultural center in East Kalimantan Province, tends to rely on the cooperative sector to encourage small and medium-scale economies. The added value of this paper is that it opens a more specific gap about the comparison between agricultural cooperatives that utilize technology and agricultural cooperatives that do not or have not fully utilized technology. To the authors' knowledge, only a few existing studies present the factors that influence agricultural cooperative profits, particularly access to computers, internet networks, digital administration skills, and financial literacy. With the literature being still shallow, it has given rise to theoretical debates that allow these four factors to determine the continuity of organizations such as agricultural cooperatives. The theme of this paper highlights the skills of agricultural cooperatives in applying technology towards business sustainability.

Reviewing the phenomena above, one of the keys to success in agricultural cooperatives is a technological approach. Therefore, this paper was created to dissect the sustainability of agricultural cooperatives through two lenses. First, the performance of agricultural cooperatives that rely on technology. Second, agricultural cooperatives are non-technology adopters. Thus, the research motivation is addressed not only to the management of agricultural cooperatives but also to stakeholders as a corridor for developing accurate policies to build a holistic cooperative business.

1.3 Review of Literature

Agricultural Cooperative

Mirón-Sanguino et al. (2022), Ševarlić & Nikolić (2013), and Siregar et al. (2020) state that an agricultural cooperative is a legal entity established by an individual or a business that has legality by separating the assets of its members as the main capital to carry out business affairs that meet shared aspirations and needs in social, cultural, and economic aspects relevant to the principles and the value of cooperatives. Empowering and strengthening agricultural cooperatives is the mandate of Law of the Republic of Indonesia Number: 1 of 2013 concerning microfinance institutions, which was updated and emerged from Law of the Republic of Indonesia Number: 25 of 1992 concerning cooperatives. Substantively, agricultural cooperative financing depends on the Agribusiness Microfinance Institution (LKM-A) which is directly supervised by GAPOKTAN (Darma et al., 2020). Darwis et al. (2023) emphasize that in the agricultural institutional format, GAPOKTAN is also a recipient of grant funds from the government assistance scheme through Direct Community Assistance-Rural Agribusiness Development (BLM-PUAP). Figure 1 displays the organizational diagram of agricultural cooperatives in Indonesia.

As an illustration, agricultural cooperatives in Indonesia operate relatively in four positions: consumer cooperatives, service cooperatives, marketing cooperatives, and producer cooperatives. However, they are often mixed or in separate matters (Soetriono et al., 2019; Susilowati et al., 2014). In a business network, the circulation of a product is influenced by

Comment [i-[7]: Problem describing: please underline an added value of your research. Clarify the theme of the paper.

Reply: The added value of the research is included in Sub-Chapter 1.2 (Research Motivation). The theme of the paper is also explained in that section. Reviewers can see additional redactions in existing revisions in the form of explanations or new paragraphs marked in yellow.

circulation or market segmentation, where there are industries that process and produce food purchased from raw materials. Generally, raw materials are sold by producers directly or by suppliers who collaborate to distribute semifinished products to companies. In this context, it allows the agricultural cooperative business to be in the producer, supplier, or consumer version. Meanwhile, in trade mobility, distributors deliver and connect the final product to consumers. Distributors also have contracts or exclusive rights with manufacturers. Apart from these traditional businesses, cooperatives can also deal with resellers and drop-shippers. Resellers are parties who buy goods from suppliers or other cooperatives and then sell them again to consumers. In contrast to resellers, the role of drop shippers is to market products from manufacturers, suppliers, or distributors without purchasing the product first. In modern market mechanisms, drop shippers do not have a stock of goods like resellers but concentrate on marketing via social media or e-commerce.

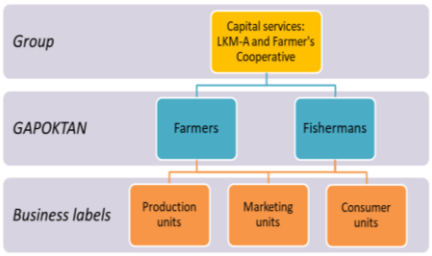


Figure 1. Institutional organization in agricultural cooperatives

Source: Modified from Ferreira da Silva et al. (2022).

The requirements for establishing a cooperative include four procedures. First, the management of the agricultural cooperative, namely GAPOKTAN, Here, GAPOKTAN is a combination of professions or a group of people who work as fishermen and farmers, or those who depend on the agricultural sector for their livelihood or are owners of land for food crops, plantations, productive forests, livestock, and as fishermen, but does not include farmworkers who manage and help operate the five fields above with daily or monthly wages. Second, GAPOKTAN administrators were registered as BLM-PUAP recipients during the 2008–2015 period. Third, domicile in the village area, which is the identity of GAPOKTAN recipients of BLM-PUAP grants. Fourth, it is claimed to have inclusive financial capabilities, so that it can allocate funds as additional initial capital for establishing agricultural cooperatives.

Agricultural cooperative administrators are appointed and dismissed by the supervisory board. Several criteria for agricultural cooperative management include: (1) having the insight and manifestation to manage, develop, and establish agricultural cooperatives professionally; (2) never been convicted of committing a criminal act that harms other parties, especially those related to finances; (3) being fair and behaving wisely so that it can be accepted by members and local residents; (4) being honest, responsible, and able to protect all members' interests in encouraging agricultural businesses; and (5) each administrator is selected from former GAPOKTAN administrators. LKM-A supervisors are GAPOKTAN administrators who are appointed and dismissed by the Annual Member Meeting (RAT). The supervisor's specifications consist of three standards. First, supervisors are required to carry out their duties well and with full dedication for the interests of LKM-A and agricultural cooperatives. Second, supervisors are responsible for carrying out their duties toward members. Third, supervisors are prohibited from holding concurrent positions as administrators.

The instruments that GAPOKTAN, must comply with to develop and form LKM-A and agricultural cooperatives are: (1) recapitulate the Articles of Association-Bylaws (AD-ART) and other regulations; (2) tabulating the books and balance sheets of financial reports; (3) have verified members from the agribusiness sector; (4) office location or place of business with some equipment such as nameplates, stamps, symbols and official qualifications related to the organization; and (5) if these four requirements have been met, the Agriculture Service at the City/Regency level can assign a registration code to agricultural cooperatives and LKM-A which is stated in the form of a Decree of the Head of the Agriculture Service. GAPOKTAN, which succeeds in building LKM-A, automatically has formal legality in the form of an agricultural cooperative legal entity with four categories of establishment. First, the meeting for the formation of agricultural cooperatives is held with a minimum of twenty members. Second, describe AD-ART transparently. Third, submit an application for ratification of the deed of establishment of the cooperative. Fourth, have a permanent domicile in the territory of Indonesia.

Overall, the financial service system at LKM-A and agricultural cooperatives uses conventional principles, namely providing loans (credit) and providing services that are closely related to members' primary needs based on interest rates. The financial service system of LKM-A and agricultural cooperatives is determined through deliberation between the management and members by selecting the best alternative that is easy to implement and can be understood by all members.

Utilization of Technology

Nowadays, technology adoption is one of the strategic steps in taking advantage of digital flows (Verhoef et al., 2021). Normally, technology adoption can be applied in various disciplines according to its actualization (Straub, 2009). One of the fields where this is implemented is cooperatives, or what is popularly called "e-cooperatives." It must be admitted that an innovation (such as technology) is not simply accepted by all groups. The main factor that hinders the adoption of an idea is individual doubt. Technology is defined as a model that requires humans to organize their lives according to the values brought by the technology itself (Sundberg, 2019). During this time, humans have had their own goals that have grown within the community. This then creates dynamics in the application of technology. The adoption process is important so that the technology is easy to implement (Miranda et al., 2016).

There are five analogies in the technology adoption process (see Figure 2). First, the knowledge stage is the phase where someone does not yet know the new technology. So that individuals know, the breakthrough needs to be conveyed via various technological channels, such as interpersonal communication, also known as word of mouth (WoM), print media, electronic media, and other channels depending on the level of activity, interests, and targets. Second is the persuasion stage, which explains the quality of potential users' thinking. Based on evaluation, discussion, and searching for sources that are considered sufficient, there is a tendency to start adopting or even rejecting technology. The presence of technology is a step to follow up on and react to in making decisions regarding technology adoption or vice versa. At this stage, individual beliefs have not fully responded to accepting technology, so the process is still stagnant. Third, decision-making. At this stage, individuals have the opportunity to make the final decision about whether to adopt or reject a technology. However, even though someone has made a decision, it is possible for a transition to occur in technology adoption. At this moment, at any time, individuals or groups of people can reject or accept technology. Fourth, the implementation stage. When someone begins to be touched by technology and learns more about it, it indicates dependence on technology. At this stage, someone continues to identify various other pieces of information to ensure the adoption of technology. Fifth, the confirmation stage is the final solution after implementation and acceptance of the technology. A person has made a decision through a series of justifications to justify the action taken. Individuals will be involved to consider whether the technology will be adopted again in the future or not. It also begins with evaluating the consequences of the decisions taken. It is very likely that someone will change the decision that was initially rejected and shift to accepting the technology. Considering that individual awareness begins to grow due to the impact of technology, its use will be limited in contemporary terms.

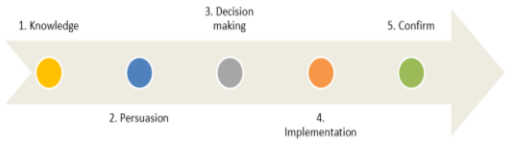


Figure 2. Five levels of technology acceptance

Source: Lin & Yu (2023), Sari (2022), and Ramadania et al. (2021).

Universally, in the Theory of Planned Behavior (TPB) and Technology Acceptance Model (TAM), the adoption rate is the relative speed that explains the innovation adopted by each member of the social system (Cheng, 2019). Technically, the measure of technology adoption is identical to the number of individuals who prioritize new ideas at a certain time, for example, in a certain year. In this case, the adoption rate is converted into a numerical indicator of the steepness of the adoption curve for a new cycle. As explained in the introduction, the root of the problem in agricultural cooperatives are quite complex. The most fundamental polemic is that not all agricultural cooperatives in Indonesia incorporate technology into their work procedures. In operationalization, a combination of humans and technology is needed to improve productivity. There is a work ecosystem in agricultural cooperatives that must be improved, especially consistency in technology adoption. Even though the majority of technology has been successfully applied to many areas of work, some technologies that are suitable are actually contradictory to certain jobs (Purnomo, 2011).

Model Flow

Figure 3 below summarizes the flow of the research model. In synthesis, two variables are designed differently. First, explanatory variables. Explanatory variables function to predict the dependent variable. Explanatory variables are: (1) access to computers; (2) internet network; (3) digital administration skills; and (4) financial literacy. Second, the dependent variable. The dependent variable is calculated by four explanatory variables. The dependent variable is profit. The research assumption is built on the adoption of technology in agricultural cooperative management, which has an impact on business sustainability. On the one hand, agricultural cooperatives with the status of non-technology adopters are also able to realize business sustainability even though they are considered traditional.

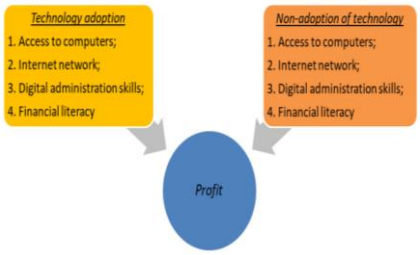


Figure 3. Theoretical framework

2. Materials and Method

2.1 Core Data

This research compares the sustainability between cooperatives that adopt technology with cooperatives that adopt non-technology or developing cooperatives that operate traditionally. The data material is secondary. Data was collected from official publications released by the Cooperatives, SMEs, and Creative Economy Office of East Kutai Regency for six periods (2017–2022). The data focuses on agricultural cooperatives with active status that are officially registered under the control and guidance of the regional government. The focus of the study is East Kutai Regency with the consideration that this region is one of the preferences for other regions at the national level that have succeeded in developing agricultural cooperatives. Apart from that, in the aggregate agricultural sector, East Kutai has the highest accumulated Gross Regional Domestic Product (GRDP) relative to the economic growth of East Kalimantan Province.

Comment [i-[8]: It seems that the validity of data is low by this way. Interview was the better way.

Reply: Thank you for your response. Please note that we use secondary data in the analysis testing process. Indeed, primary data (e.g. interviews or surveys) is a better way. Because the database is secondary, obtained from government document publications/reports, this is the only one that can be presented. Even though there are weaknesses, this can be a valuable lesson for improving the methodology in the future.

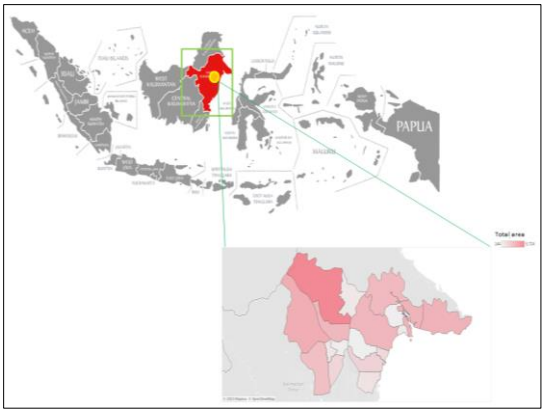


Figure 4. Study area

Figure 4 displays the research area. Specifically, agricultural cooperatives active in East Kutai are spread across eighteen sub-districts, namely: Teluk Pandan, Telen, Sangkulirang, Sangatta Utara, Sangatta Selatan, Sandaran, Rantau Pulung, Muara Bengkal, Muara Wahau, Muara Ancalong, Long Mesangat, Kombeng, Kaubun, Karangan, Kaliorang, Busang, Bengalon, and Batu Ampar.

2.2 Variables

The sustainability of agricultural cooperatives is reflected in their level of profit. Then, the mechanisms that influence cooperative profits are divided into four categories: access to computers, internet networks, digital administration skills, and financial literacy. Each variable has varying indicators. Table 1 summarizes the variable profiles based on parameters and codes, variable types, and units of measurement. First, profit describes the financial benefits that are realized when the income generated from business activities exceeds the costs, fees, and taxes involved in supporting a business. Profit is the main benchmark for agricultural cooperatives. Implicitly, the realization of profit after income is reduced by all expenses or component costs, including the tax burden. Any profits are channeled back to the agricultural cooperative members, who choose to pocket the cash or invest it back into the business. Profit is calculated as total income minus expenses. Second, access to computers. Data on access to computers is elaborated based on the percentage of agricultural cooperative

ownership of computers. Third, the internet network is detected by the network connection that appears in the status bar. The average internet network speed in Indonesia is between 250 kbps to 1 mbps every second. Fourth, digital administration skills are operator units in the administration division that control and carry out administration digitally. Fifth, financial literacy is defined as the level of basic knowledge of financial management identified by the average length of time following financial education or certification according to international standards.

Table 1. Profile of variable

Parameters (code)	Variable type	Measurement
Profit (PRT)	Dependent	Nominal (Rp.)
Access to Computers (AC)	Explanatory	Percentage (%)
Internet Network (IN)	Explanatory	Kilobyte per second (kbps)
Digital Administration Skills (DAS)	Explanatory	Operator in the administration division (average units per cooperative)
Financial Literacy (FL)	Explanatory	Length of time following financial education/training certification (years)

2.3 Analysis Techniques

Data processing analysis uses a quantitative approach. In the quantitative scope, the panel regression method compares two objects, namely agricultural cooperatives that adopt technology vs. agricultural cooperatives that adopt non-technology. Conceptually, agricultural cooperatives that adopt non-technology are cooperatives whose majority still depend on conventional equipment. Because the data for each variable varies, it is proxies using logarithms. The basic statistical formulation is written below:

$$Y = \beta_0 + \beta_1 X + \ldots + \mu \quad (1)$$

After adjusting for variable composition, the equation function is then set as follows:

$$PFT_1 = \beta_0 + \beta_1 lnAC_{it} + \beta_2 lnIN_{it} + \beta_3 lnDAS_{it} + \beta_4 lnFL_{it} + \mu_1 \quad (2)$$

$$PFT_2 = \beta_0 + \beta_1 lnAC_{it} + \beta_2 lnIN_{it} + \beta_3 lnDAS_{it} + \beta_4 lnFL_{it} + \mu_2 \quad (3)$$

Where: Y = dependent variable; β_0 = constant; $\beta_1,...\beta_4$ = regression slope; ln = logarithm; X = explanatory variables; PFT_1 and PFT_2 = profit in agricultural cooperatives adopting technology and non-adopting technology; μ_1 and μ_2 = residuals; it = observation period.

Systematics in the panel regression model includes four things. First, descriptive statistics. Descriptive statistics facilitate large amounts of data for understandable interpretation, allowing, representing, and interpreting data more efficiently through various tabulation processes. Second, the correlation coefficient. Correlation coefficient to validate the reciprocal relationship between two variables. In its application, the research uses the product moment correlation score developed by Karl Pearson. Third, partial statistical testing, simultaneous statistical testing, and statistical testing of the coefficient of determination. Partial test to assess the individual influence of explanatory variables on the dependent variable. The simultaneous test projects collective causality between all explanatory variables on the dependent variable. Statistical test of the coefficient of determination to review the strength of the designed model.

3. Results and Discussion

3.1 Empirical Findings

In general, the five variables have diverse data. Table 2 concludes that all combined data sets of agricultural cooperatives that adopt technology and non-technology adopters are quite varied. The maximum profit value reaches Rp. 115,700,500 and the minimum profit is Rp. 62,050,450, resulting in a mean of Rp. 88,875,475. In terms of access to computers, the maximum achievement was 98.39% and the minimum value reached 41.8%, while the mean was 70.1%.

Table 2. Descriptive statistics matrix

Variables	Mean	S.D	Max.	Min.
Profit	88,875,475	37,936,314.17	115,700,500	62,050,450
Access to computers	70.1	40.02	98.39	41.8
Internet network	575	388.91	850	300
Digital administration skills	10.5	7.78	16	5
Financial literacy	4.25	3.18	6.5	2

Furthermore, agricultural cooperatives have a maximum internet network of 850 kbps, while the minimum internet network is 300 kbps and the mean internet network reaches 575 kbps. On average, agricultural cooperatives have operators

with a maximum digital administration skill of 16 units; the lowest is 5 units, and the mean reaches 10.5 units. Agricultural cooperative managers spend a maximum of 6.5 years attending education or training to obtain financial certification, while the minimum training time is 2 years, with the average duration of financial training reaching 4.25 years. The standard deviation (S.D.) scores for the five variables are shown below: profit (37,936,314.17), access to computers (40.02), internet network (388.91), digital administration skills (7.78), and literacy finance (3.18).

Table 3. Pearson correlation

Variables	PRT	AC	IN	DAS	FL
PRT	1	.362	.783**	.411	.887**
		(.117)	(.000)	(.072)	(.000)
AC	.362	1	.409	.454*	.507*
	(.117)		(.080)	(.045)	(.023)
IN	.783**	.409	1	.255	.273
	(.000)	(.080)		(.279)	(.244)
DAS	.411	.454*	.255	1	.700**
	(.072)	(.045)	(.279)		(.006)
FL	.887**	.507*	.273	.700**	1
	(.000)	(.023)	(.244)	(.006)	

Abbreviations: PRT = profit, AC = access to computers, IN = internet network, DAS = digital administration skills, and FL = financial literacy. *Degrees of probability*: *) ρ <0.05 and **) ρ <0.01.

With the SPSS version 29 tools, the criteria for assessing correlation range from -1 to 1. Obilor & Amadi (2018) and Ratner (2009) explain that if the correlation coefficient is close to -1 or 1, then the two variables have a strong correlation. Conversely, if the correlation score is close to 0, then the two variables tend to have a weak or even no correlation. In product-moment correlation testing, it is possible to direct the correlation between variables negatively or positively. From Table 3, there is not a single relationship between variables that is negatively correlated. However, based on the degree of probability, a significant relationship was found. The five significant causalities between IN and PRT ($\rho = 0.000$), FL and PRT ($\rho = 0.000$), DAS and AC ($\rho = 0.045$), FL and AC ($\rho = 0.023$), and FL and DAS ($\rho = 0.006$).

Table 4. Summary of tests, dependent variable: profit

Items	Adopters	Non-Adopters
Constant	2.739*	-.094
	(.040)	(.848)
S.E	1.336	.490
Access to computers	2.839**	-.141*
	(.002)	(.032)
Internet network	.100	-.043
	(.399)	(.100)
Digital administration skills	.411	-.003
	(.730)	(.726)
Financial literacy	2.761*	.071*
	(.029)	(.039)
F-statistic	31.077**	1.649
	(.000)	(.195)
R^2	.853	.408
N	108	108

Degrees of probability: *) ρ <0.05 and **) ρ <0.01.

In this session, reveal the interrelationships in partial and simultaneous variable relationships as well as the determination of the study model (see Table 4). As a result, it was noted that under constant conditions, the four explanatory variables, namely AC, IN, DAS, and FL, had a positive ($\beta = 2.739$) and significant ($\rho = 0.040$) impact on PFT_1 in technology-adopting cooperatives. In contrast to the case of non-technology adopter cooperatives, where AC, IN, DAS, and FL actually have a negative influence ($\beta = -0.094$) and are not significant on PFT_2 ($\rho = 0.848$). In partial causality, there are two positive paths with significant effects between AC ($\beta = 2.839$; $\rho = 0.002$) and FL ($\beta = 2.761$; $\rho = 0.029$) on PFT_1 of agricultural cooperatives adopting technology. Although the two explanatory variables (IN and DAS) have no significant impact, the relationship is positive. Another statistical interpretation presents that, for the case of agricultural cooperatives that are non-adopters of agricultural technology, FL is the only variable that is on the positive path ($\beta = 0.071$) with a significant effect ($\rho = 0.039$) on PFT_2. The opposite thing in the non-adopter regression is that

although the three explanatory variables (AC, IN, and DAS) were found on a negative path (β = *-0.141*; β = *-0.043*; β = *-0.003*), only AC had a significant impact (ρ = *0.032*) and the remaining two variables actually had an insignificant impact on PFT_2 (ρ = *0.100*; ρ = *0.726*).

When compared using the F-statistical test, agricultural cooperatives that adopt technology are better than agricultural cooperatives that are not adopters of technology. The score on the F-statistic implies that the four explanatory variables have a significant simultaneous relationship to PFT_1 (ρ = *0.000*). On the one hand, AC, IN, DAS, and FL have an insignificant simultaneous effect on PFT_2 (ρ = *0.195*). Based on the coefficient of determination (R^2), the study model for agricultural cooperatives adopting technology is more dominant than agricultural cooperatives not adopting technology. The R^2 scores of the two show a striking two-fold difference. The study model with a very close relationship between the four explanatory variables on PFT_1 reached 85.3%, and the rest is beyond discussion. Interestingly, in the non-technology adopter agricultural cooperative model, AC, IN, DAS, and FL, there is a close relationship with PFT_2 of 40.8%, and there are still many attributes outside the model that need to be highlighted.

3.2 Justification

Table 5 attaches data regarding cooperative units for agricultural commodities (including technology adopters and non-technology adopters). At the regional level, East Kutai agricultural cooperatives account for half of the total number of East Kalimantan agricultural cooperatives. Throughout the six periods, the average agricultural cooperative with active status was 667.3 units, with a growth of 0.45%, while the average agricultural cooperative in East Kalimantan reached 1,333.5 units, or a growth of around 0.34%, and the average agricultural cooperatives in Indonesia were 38,644 units (0.28%). Especially in 2020–2021, the number of agricultural cooperatives and their growth trend experienced a drastic decline. This is caused by the COVID-19 phenomenon, which disrupts human mobility, including work routines. The pandemic outbreak has also triggered economic turmoil in various multi-sectors, such as agricultural cooperative businesses.

In the midst of the sharp increase in the spread of COVID-19 in Indonesia throughout 2020–2021, both in East Kutai, East Kalimantan, and Indonesia, the number and growth of agricultural cooperatives are in a downward trend, which also has an impact on many commodities. What's worse, from 2019 to 2021, cooperative units at the three scales are decreasing. For example, in East Kutai, agricultural cooperatives shrank by 254 units (-30.49%), while agricultural cooperatives in East Kalimantan shrank by 255 units (-17.07%), and agricultural cooperatives in Indonesia shrank by 9,987 units (-22.11%). Moreover, with the average length of business being 2–2.5 decades or established since the early 1998s, the existence of agricultural cooperatives in East Kutai, East Kalimantan, and Indonesia is relatively positive. This can be seen from the impressive pattern since 2017–2019, where East Kutai agricultural cooperatives increased by 254 units (30.19%). Also, there was a conducive transformation in East Kalimantan agricultural cooperatives, reaching 255 units (17.57%), and in Indonesia it reached 9,987 units (21.35%).

Table 5. Total agricultural cooperatives and their growth in East Kutai, East Kalimantan and Indonesia

Year	East Kutai	East Kalimantan	Indonesia	% of East Kutai	% of East Kalimantan	% of Indonesia
2017	638	1,273	37,144	–	–	–
2018	724	1,468	41,693	13.48%	15.32%	12.25%
2019	845	1,501	45,489	16.71%	2.25%	9.1%
2020	600	1,252	35,761	-28.99%	-16.59%	-21.39%
2021	591	1,246	35,502	-1.5%	-0.48%	-0.72%
2022	606	1,261	36,275	2.54%	1.2%	2.18%

Source: BPS of Indonesia (2023), BPS of East Kalimantan (2023), and BPS of East Kutai (2023).

All of the above achievements cannot be separated from the investment climate and government policies supporting agricultural cooperatives. With the synergy of the two, the agricultural sector continues to grow from time to time. Despite the threat of lockdown, agricultural cooperatives have proven to be resilient compared to other business characteristics (*e.g.*, Aminulloh et al., 2021; Khasanah et al., 2022; Pratikno & Pattinussa, 2022; Yuhertiana et al., 2022). The recovery of the agricultural sector was faster, while other economic sectors such as manufacturing, services, construction, and trade were slower. Only agriculture, electricity, and clean water are essential sectors that are crucial in supporting human life, even though they are slightly isolated by regional quarantine. From a macroeconomic perspective, farmers who are connected as members of cooperatives (GAPOKTAN) play an important role in the agricultural economy in Indonesia, East Kalimantan, and East Kutai. Although the growth of the agricultural sector in the three objects appears to be fluctuating, the trend remains positive. The average agricultural GRDP growth in East Kalimantan is slightly superior to that in East Kutai. The growth percentage achieved was 8.03%, compared to 7.72%. At the national level, the average growth was 12.98%.

Comment [i-[9]: In description please add more information to show the difference between your work and other authors' work.

Reply: Basically, the authors follow the comments suggested by the author, including a comparison of existing findings with previous studies presented.

In reality, Figure 5 also explains the GDP growth performance of the agricultural sector in East Kutai, East Kalimantan, and Indonesia during 2018–2022. Specifically, there are striking similarities between the three objects. The latest data shows that the most dominant agricultural GDP growth for the three was in 2020, followed by East Kutai (9.12%), East Kalimantan (8.8%), and Indonesia (13.7%). The lowest will be in 2022, with the following respective percentages: East Kutai (5.9%), East Kalimantan (7.04%), and Indonesia (12.4%). This fact signals that when COVID-19 surged, especially in 2020–2022, economic growth in the agricultural sector at the domestic, provincial, and regional scales was relatively stable. However, agricultural GDP growth is starting to shrink in the new normal, or post-pandemic era. One of the reasons for the drastic decline in agricultural economic growth is productivity. The shift in economic structure from the primary sector to the tertiary sector during COVID-19 has pushed the majority of Indonesia's population involved in agriculture to shift to the service sector. The transition of the two sectors causes unbalanced economic circulation. The labor market in the agricultural industry, with a decreasing share, is also reducing the agricultural value chain.

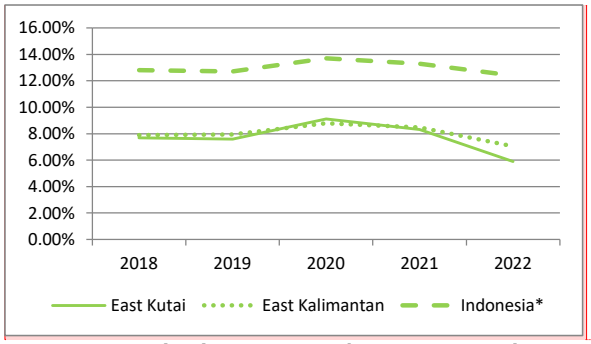


Figure 5. Agricultural economic contribution to GRDP and GDP

Source: BPS of Indonesia (2023), BPS of East Kalimantan (2023), and BPS of East Kutai (2023);
*Noted: **) GDP = Gross Domestic Product.

Comment [i-[10]: Use the English format for tables.

Reply: The authors appreciate your suggestions. However, the purpose of Figure 5 is shown to be more varied (when compared with the Table). Apart from that, readers can also understand data graphs more easily.

Some past papers highlight the role of computers in optimizing cooperative profits. The globalization revolution stimulated the Gulf Cooperation Council (GCC) to consider technological advances in the development of the financial system. Through electronic-based financial technology, the percentage of the money supply and GDP are increasing. By collaborating computer domains, it becomes easier to collaborate and coordinate in various work environments (Alshubiri et al., 2019; Bullinger-Hoffmann et al., 2021). For example, multi-agent-based supply chain cooperatives in China, cooperative businesses in the United States, microbanking in China, and cooperative communities in the United States. Studies from Cook (2018), Deller et al. (2009), Lv et al. (2022), Majee & Hoyt (2011), and Zhang & Geng (2012) stated that the use of technology in two simulations, namely the average individual income, enthusiasm, and cooperation in cooperatives, had a lower ratio of profit distribution to changes in knowledge spillovers. Extrapolation from the entire population is projected to have a larger impact on cooperative revenues. For a long period of time, cooperative regeneration was determined by a process of technological adaptation embedded in strategic planning. Developments such as financial technology (FinTech) in the financial services industry bring gradual profit opportunities.

The experiments in the previous edition debated the findings in several cases regarding the relevance of internet networks to profits in banking, agribusiness, business model innovation, organizational capabilities, and entrepreneurship. The external effect of internet financing allocation will reduce commercial bank profits, but internet financing allocation actually has a positive impact on traditional bank profits in China (Yang et al., 2023). In Shandong–China, spectacular internet technology for modern agricultural patterns in maximizing apple farmers' income is the right policy (Zhang et al., 2021). Digitalization, such as internet provision, has explored new business opportunities to create value networks in automotive and media companies in Germany (Rachinger et al., 2019). According to Brous et al. (2020), the Internet of Things (IoT) has a dual effect, namely risks and benefits. In the case of a few companies in the Netherlands, IoT is certain to have a comprehensive impact on asset management, but at the same time, it generates unexpected social convergence in organizations. Langley et al. (2021) argue that business sketches at the macro, medium, and micro levels contained in the technological intelligence framework clearly understand the service ecosystem.

The connection between digital administration skills and profits is revealed in several manuscripts (Ciruela-Lorenzo et al., 2020; Feyen et al., 2021; Hasbullah & Bareduan, 2021; Jorge-Vázquez et al., 2021; Wijaya et al., 2023; Xie et al., 2016). Digital financial services programs have implications for public policy. Technology providers enhance the asymmetric exchange of information and enable economic forces to bring major advances to the global market structure. Reducing transaction costs in market structures accommodates more innovative improvements in the production of financial services, including the acquisition of trust capital, data, compliance activities, funding, and customers. In the

context of smart agriculture, the digitalization of agricultural cooperatives in Spain is characterized by intensive information technology at various stages of the economic value chain. To preserve better understanding, decision-makers in agricultural cooperatives need a technology adoption process. One of the determining factors for improving digital technology is offering, embracing, and evaluating new technologies that offer the potential of electronic commerce. As an illustration of agri-food cooperatives in Europe, where wealth measures are influenced by heterogeneous performance, integration, skills training, and digital connectivity. In the scope of the Chinese market, co-creation of value between customers and enterprises relies heavily on understanding technological resources. In this way, alternative competitive strategies push company assets in a transformative direction. This is different from the evidence for several traditional cooperatives at the private campus level in Indonesia. The digital cooperative framework model is running slowly due to conventional membership administration, traditional logistics models, limited time, and manual transactions.

The relationship between financial literacy and profits level was tested through a study approach. For example, an investigation from HC and Gusaptono (2020) analyzed the causality between financial literacy and investment decisions. Financial attitudes, financial awareness, financial behavior, and good financial knowledge encourage customers' decisions to take credit and save at sharia banking in Yogyakarta (Indonesia). In many agro-rural cooperatives in Nepal, cooperative sustainability is influenced by the strength of financial literacy (Nirmal & Bikram, 2015). Technically, investment and saving decisions are assisted by non-profit organizations. By maintaining, designing, and assisting local institutions that focus on basic financial knowledge and technology transfer, it will be useful towards achieving better finances. The financial management behavior of state employee cooperative administrators in Bandar Lampung-Indonesia is reflected in their level of insight. Ermawati et al. (2019) explained that basic knowledge of cooperative management resources is considered to have a significant relationship with financial literacy. The relationship between financial literacy and the financial performance of SMEs in Malaysia with manager control and SME characteristics as moderating variables was tested (Yakob et al., 2021). The validation results explain that financial literacy has a significant impact on SME performance. Through financial literacy skills and professional managerial concepts, sustainable business performance can be guaranteed. Also, business classes in construction, mining and quarrying, agriculture, manufacturing, and service units carried out consistently will expand economic benefits. The role of administrators and planners is very important in running the agricultural cooperative mechanism. Salehi & Rasoulaizar (2019) concluded that the affective level of farmers who are members is positively correlated with the effectiveness of agricultural cooperatives in Mahabad Township–Iran.

Additionally, there are major differences between the present work and the works of other authors. First, are the objectives, variables, methods, and characteristics of the data. The paper focuses on agricultural cooperative profits which are influenced by four aspects (access to computers, internet networks, digital administration skills, and financial literacy). Even though they are both in the scope of modern and conventional agricultural cooperatives as an observation, Utomo et al. (2023) further highlights the success of agricultural cooperatives in terms of human resources of management members, quality of services and products, network utilization, and organizational management. Then, the method used is panel regression, while Utomo et al. (2023) is supported by a comparative–descriptive model. On the other hand, the characteristics of the data analyzed come from secondary data and are not primary. In other words, this work refreshes the heterogeneous concept, because the existing data is not only focused on agricultural cooperative owners, but also automatically represents the performance of the agricultural cooperative organization as a whole with the involvement of management members. Second, is location. The scope of this work is designed for eighteen districts in one region. Meanwhile, other studies were created on special agricultural cooperatives at city and provincial levels throughout China (Liu & Zhang, 2023), groups of agricultural cooperatives in the milk supply chain in the Malang area (Hardana & Pratiwi, 2023), small-scale agricultural cooperatives in Vietnam (Nguyen et al., 2023), village agricultural cooperatives along the Tarim River (Zhu & Wang, 2024). Third, is the result. To achieve a strong agricultural cooperative, apart from IT, skills in administration are also needed. In this work, digital administration is chosen as one of the variables to address many things, including online recording, archiving, work efficiency, etc. Furthermore, developing agricultural cooperatives in East Kutai also requires a good understanding of financial literacy. In other practices, Nuansri et al. (2024) stated that the profits of agricultural cooperatives in Thailand are relatively dependent on the presence of offices, number of members, ability to raise funds and capital, so that the differentiating point is digitalization. According to Paula de Oliveira & Wander (2022), the obstacle to agro-industrial cooperatives in Brazil is a conservative environment. The similarity with this work is centered on administrative factors, but there is a slight difference in that financial literacy is structured into a variable that is able to change cooperative performance for the better. Ferreira da Silva et al. (2022) evaluate that the viability of agricultural cooperatives in Brazil can be determined through the professionalism of governance (transparency and reliability) and financial control procedures. For this reason, one of the solutions offered by this work to assess the feasibility of an agricultural cooperative is to include financial literacy. Production behavior reflects the quality of agricultural cooperatives. Li et al. (2021) revealed that friendly service and awareness of risks to farmer safety are guidelines in reducing losses of agricultural cooperatives in Shaanxi–China. From this article, it can be understood that the productivity of agricultural cooperatives does not only pay attention to administrative services, but also focuses on farmer behavior. Here, the difference is that financial literacy was not explored by Li et al. (2021). The goals of agricultural cooperatives and other types of cooperatives are very different. As an illustration, Irene Martínez-López et al. (2023) measured the performance of agricultural cooperatives based on a literature review. Evolution in agricultural cooperatives

can consider the success of governance, innovation and benefits. It's just that digital administration and financial literacy are variations or derivatives of rules created to measure success.

4. Conclusion and Recommendation

The target of this research is to compare the sustainability of agricultural cooperatives that adopt technology versus those that adopt non-technology. The data sample focuses on agricultural cooperatives affiliated with the East Kutai Regency government. Through a series of tests, two main things were found. First, access to computers, internet networks, digital administration skills, and financial literacy have a positive effect on the profits of agricultural cooperatives adopting technology. Second, access to computers, internet networks, digital administration skills, and financial literacy have a negative impact on the profits of agricultural cooperatives that are not technology adopters. Third, partial testing found that access to computers, internet networks, digital administration skills, and financial literacy had positive implications for profits in agricultural cooperatives adopting technology, but not in the case of non-technology adopting cooperatives, where only financial literacy has a positive impact on profits.

The academic implications of studying technology are pioneering and best practices for cooperative sustainability. By prioritizing technological elements, it will create creativity for agricultural cooperatives. Agricultural cooperative managers carry out adaptive initiatives to involve all members in an integrated manner. In operations, agricultural cooperative management can bridging technological innovation, for example, by encouraging technological space that makes payment transactions easier through digital applications that are tracked by a system. Policy actors are expected to promote, socialize, and transfer knowledge related to technology use skills. Current regulations are still weak, where the government's limitations in dividing supervisory duties often overlap, so they need to be modified. Practical recommendations for non-technology-adopting cooperatives must be resolved through long-term schemes to pay more attention to internet networks and digital administration skills without ignoring the potential of local wisdom.

The weakness of the study lies in the observation period. The second limitation is the scope of the agricultural cooperative case in one object. Because the East Kutai area is classified as a developing market, the energy shown by management members in increasing agricultural cooperative profits through internet networks and digital administration skills is less than optimal. Concretely, it is also necessary to think about other variables outside the current variables that have the potential to influence the profits of agricultural cooperatives. On this basis, future scientific work proposes a constructive methodological design to invite and complement more parallel disseminations.

Comment [i-[11]: Include suggestions for further research.

Reply: Suggestions for further research are included in a new paragraph or at the end of Chapter 4 (Conclusion & Recommendations).

References:

1. Abebaw, D., & Haile, M. G. (2013). The impact of cooperatives on agricultural technology adoption: Empirical evidence from Ethiopia. *Food Policy*, *38*, 82–91. https://doi.org/10.1016/j.foodpol.2012.10.003
2. Ahmad, S. F., Han, H., Alam, M. M., Rehmat, M. K., Irshad, M., Arraño-Muñoz, M., & Ariza-Montes, A. (2023). Impact of artificial intelligence on human loss in decision making, laziness and safety in education. *Humanities & Social Sciences Communications*, *10*(1), 311. https://doi.org/10.1057/s41599-023-01787-8
3. Alizadehnia, M., Ommani, M. R., Noorivandi, A. N., & Maghsoodi, T. (2022). Identify and analysis of indicators and sub-indicators of innovation management in agricultural cooperatives of Iran. *International Journal of Agricultural Science, Research and Technology in Extension and Education Systems*, *12*(2), 89–98. Retrieved from https://sanad.iau.ir/en/Article/1033769
4. Alshubiri, F., Jamil, S. A., & Elheddad, M. (2019). The impact of ICT on financial development: Empirical evidence from the Gulf Cooperation Council countries. *International Journal of Engineering Business Management*, *11*(2), 1–14. https://doi.org/10.1177/1847979019870670
5. Aminulloh, A., Harun'in, S. Z., Suyatna, N., & Komarudin, U. (2021). Muzâraah, SDGs, and the welfare of Indonesian farmers. *Jurnal Ilmiah Ekonomi Islam*, *7*(3), 1372–1383. http://dx.doi.org/10.29040/jiei.v7i3.2583
6. Anh, T. T. (2022). Factors affecting members' satisfaction with high-tech agriculture cooperatives in Vietnam's Northern key economic region. *International Journal of Professional Business Review*, *7*(5), e0735. https://doi.org/10.26668/businessreview/2022.v7i5.735
7. Arts, I., Fischer, A., Duckett, D., & van der Wal, R. (2021). Information technology and the optimisation of experience – The role of mobile devices and social media in human-nature interactions. *Geoforum*, *122*, 55–62. https://doi.org/10.1016/j.geoforum.2021.03.009
8. Bharti, N. (2021). Role of cooperatives in economic empowerment of women: A review of Indian experiences. *World Journal of Entrepreneurship, Management and Sustainable Development*, *17*(4), 617–631. https://doi.org/10.1108/WJEMSD-07-2020-0095
9. BPS of East Kalimantan. (2023). Kalimantan Timur Province in figures 2023. Retrieved from https://kaltim.bps.go.id/publication/2023/02/28/7a58231d5aa2f5a7b4d5c36a/provinsi-kalimantan-timur-dalam-angka-2023.html
10. BPS of East Kutai. (2023). Kutai Timur Regency in figures 2023. Retrieved from https://kutimkab.bps.go.id/publication/2023/02/28/64636a843fc8f02c2a69dcad/kabupaten-kutai-timur-dalam-angka-2023.html

Comment [i-[12]: Assure that all citations are contained in the References. Assure that all references were quoted in the text. Please add a few references to newest papers, especially from 2021-2024. You must use APA format for reference list. At least two references from the articles of this journal should be referenced.

Reply: The authors appreciate the direction given by the review jury, including details such as references. Therefore, we highlight every small part and correct it carefully. All quotations are ensured to be included in the references and all reference lists are also cited in the manuscript. The reference format uses APA style. Besides that, several references to recent papers, especially from 2021-2024 are included in Sub-Chapter 3.2 (Justification) as additional information to show the differences between this work and the work of other authors in terms of scope, objectives, variables, methods, data types, and findings. Finally, three articles published in IJASRT were also cited.

11. BPS of Indonesia. (2023). Statistical yearbook of Indonesia 2023. Retrieved from https://www.bps.go.id/publication/2023/02/28/18018f9896f09f03580a614b/statistik-indonesia-2023.html

12. Brous, P., Janssen, M., & Herder, P. (2020). The dual effects of the Internet of Things (IoT): A systematic review of the benefits and risks of IoT adoption by organizations. *International Journal of Information Management, 51*, 101952. https://doi.org/10.1016/j.ijinfomgt.2019.05.008

13. Bullinger-Hoffmann, A., Koch, M., Möslein, K., & Richter, A. (2021). Computer-supported cooperative work – Revisited. *i-com, 20*(3), 215–228. https://doi.org/10.1515/icom-2021-0028

14. Candemir, A., Duvaleix, S., & Latruffe, L. (2021). Agricultural cooperatives and farm sustainability – A literature review. *Journal of Economic Surveys, 35*(2), 1118–1144. https://doi.org/10.1111/joes.12417

15. Cheng, E. W. L. (2019). Choosing between the theory of planned behavior (TPB) and the technology acceptance model (TAM). *Educational Technology Research and Development, 67*(2), 21–37. https://doi.org/10.1007/s11423-018-9598-6

16. Ciruela-Lorenzo, A. M., Del-Aguila-Obra, A. R., Padilla-Meléndez, A., & Plaza-Angulo, J. J. (2020). Digitalization of agri-cooperatives in the smart agriculture context. Proposal of a digital diagnosis tool. *Sustainability, 12*(4), 1325. https://doi.org/10.3390/su12041325

17. Cook, M. (2018). A life cycle explanation of cooperative longevity. *Sustainability, 10*(5), 1586. https://doi.org/10.3390/su10051586

18. Darma, S., Maria, S., Lestari, D., & Darma, D. C. (2020). An agroforestry consortium: A multiderminant in instituting an agrisilviculture system to improve welfare. *Virtual Economics, 3*(1), 95–111. https://doi.org/10.34021/ve.2020.03.01(5)

19. Darma, S., Wijaya, A., & Darma, D. C. (2020). Different tests for the existence of agricultural cooperatives in Indonesia: Before and after COVID-19. *Asia Life Sciences, 10*(3), 615–628. Retrieved from https://www.academicspub.com/article/different-tests-for-the-existence-of-agricultural-cooperatives-in-indonesia-before-and-after-covid-19

20. Darwis, V., Rachmawati, R. R., Muslim, C., Chanifah, C., Sembiring, A., Ilham, N., Mufidah, L., Suhartini, S. H., Basuki, R. S., Rina, Y., Suharyon, Nurdin, M., Dahya, Damanik, M., & Dewi, D. O. (2023). Transformation of financial institutions grants from the government to inclusive financial institutions in Indonesia. *PloS ONE, 18*(6), e0286482. https://doi.org/10.1371/journal.pone.0286482

21. Deller, S., Hoyt, A., Hueth, B., & Sundaram-Stukel, R. (2009). Research on the economic impact of cooperatives. *Project Principal Investigators*. University of Wisconsin Center for Cooperatives, Madison. Retrieved from https://resources.uwcc.wisc.edu/Research/REIC_FINAL.pdf

22. Diraco, G., Rescio, G., Siciliano, P., & Leone, A. (2023). Review on human action recognition in smart living: Sensing technology, multimodality, real-time processing, interoperability, and resource-constrained processing. *Sensors, 23*(11), 5281. https://doi.org/10.3390/s23115281

23. Ermawati, L., Pratomo, D., & Hasimi, D. M. (2019). The effect of financial literation on financial performance in cooperatives of state employees in Bandar Lampung. *FINANSIA: Jurnal Akuntansi dan Perbankan, 2*(1), 69–83. https://doi.org/10.32332/finansia.v2i01.1441

24. Ferreira da Silva, F., Baggio, D. K., & Santos, D. F. L. (2022). Governance and performance model for agricultural cooperatives. *Estudios Gerenciales, 38*(165), 464–478. https://doi.org/10.18046/j.estger.2022.165.5238

25. Feyen, E., Frost, J., Gambacorta, L., Natarajan, H., & Saa, M. (2021). Fintech and the digital transformation of financial services: Implications for market structure and public policy. *BIS Papers No 117*. Monetary and Economic Department, World Bank Group. Retrieved from https://www.bis.org/publ/bppdf/bispap117.pdf

26. Haff, P. (2014). Humans and technology in the anthropocene: Six rules. *The Anthropocene Review, 1*(2), 126–136. https://doi.org/10.1177/2053019614530575

27. Haleem, A., Javaid, M., Qadri, M. A., & Suman, R. (2022). Understanding the role of digital technologies in education: A review. *Sustainable Operations and Computers, 3*, 275–285. https://doi.org/10.1016/j.susoc.2022.05.004

28. Halilintar, M. (2018). Cooperatives and economic growth in Indonesia. *European Research Studies Journal, XXI*(2), 611–622. https://doi.org/10.35808/ersj/1027

29. Hardana, A. E., & Pratiwi, D. E. (2023). The impact of trust and relationship quality on agricultural cooperative competitiveness. *HABITAT, 34*(3), 311–320. https://doi.org/10.21776/ub.habitat.2023.034.3.28

30. Hasbullah, H., & Bareduan, S. A. (2021). The framework model of digital cooperative to explore economic potential in higher education. *Sinergi, 25*(2), 195–206. http://dx.doi.org/10.22441/sinergi.2021.2.011

31. HC, R. H. K., & Gusaptono, R. H. (2020). The impact of financial literacy on investment decisions between saving and Credit: Studies on sharia bank customers in the Special Region of Yogyakarta. *Journal of Economics and Business, 3*(4), 1456–1463. https://doi.org/10.31014/aior.1992.03.04.291

32. Hoehe, M. R., & Thibaut, F. (2020). Going digital: How technology use may influence human brains and behavior. *Dialogues in Clinical Neuroscience, 22*(2), 93–97. https://doi.org/10.31887/DCNS.2020.22.2/mhoehe

33. Jia, F., Zhang, R., & Li, J. (2023). The impact of continuous use intention of cooperative members on new agricultural technologies. *Frontiers in Psychology, 14*, 1089362. https://doi.org/10.3389/fpsyg.2023.1089362

34. Jorge-Vázquez, J., Chivite-Cebolla, M. P., & Salinas-Ramos, F. (2021). The digitalization of the european agri-food cooperative sector. Determining factors to embrace information and communication technologies. *Agriculture, 11*(6), 514. https://doi.org/10.3390/agriculture11060514

35. Khan, N., Ray, R. L., Kassem, H. S., Ihtisham, M., Siddiqui, B. N., & Zhang, S. (2022). Can cooperative supports and adoption of improved technologies help increase agricultural income? Evidence from a recent study. *Land, 11*(3), 361. https://doi.org/10.3390/land11030361

36. Khasanah, N., Sriyana, J., Prasetyo, A., Nurdinawati, V., Hartopo A., Wahyudianto, H., Gartika, D., & Fahlevi, M. (2022). The role of knowledge management and sharing in cooperatives practices toward National Economic Recovery in the COVID-19 pandemic era. *Frontiers in Public Health, 10*, 963755. https://doi.org/10.3389/fpubh.2022.963755

37. Kurniawan, E., Wahyuningsih, D., & Darma, D. C. (2023). Showcasing luxury on social media: What are the effects? An anomaly among lecturers. *Jurnal Sosioteknologi, 22*(1), 11–23. https://doi.org/10.5614/sostek.itbj.2023.22.1.2

38. Kurt, İ., & Gök, H. (2015). Impact of technology on the perceptions of culture shock. *Mevlana International Journal of Moral and Values Education, 2*(2), 21–28. Retrieved from http://mijmve.mevlana.edu.tr

39. Kusmiati, E., Masyita, D., Febrian, E., & Cahyandito, M. F. (2023). A study on the determinants of successful performance of Indonesian cooperatives. *International Journal of Social Economics, 50*(9), 1285–1301. https://doi.org/10.1108/IJSE-02-2022-0078

40. Langley, D. J., van Doorn, J., Ng, I. C. L., Stieglitz, S., Lazovik, A., & Boonstra, A. (2021). The Internet of Everything: Smart things and their impact on business models. *Journal of Business Research, 122*, 853–863. https://doi.org/10.1016/j.jbusres.2019.12.035

41. Leite, A. R., Padilha, A. C. M., & Binotto, E. (2021). Cooperation challenges in agricultural cooperatives. *Revista de Administração da UFSM, 14*(4), 809–826. https://doi.org/10.5902/1983465964160

42. Li, M., Yan, X., Guo, Y., & Ji, H. (2021). Impact of risk awareness and agriculture cooperatives' service on farmers' safe production behaviour: Evidences from Shaanxi Province. *Journal of Cleaner Production, 312*, 127724. https://doi.org/10.1016/j.jclepro.2021.127724

43. Lin, Y., & Yu, Z. (2023). Extending technology acceptance model to higher-education students' use of digital academic reading tools on computers. *International Journal of Educational Technology in Higher Education, 20*, 34. https://doi.org/10.1186/s41239-023-00403-8

44. Lind, J., Pelger, S. & Jakobsson, A. (2019). Students' ideas about technological systems interacting with human needs. *International Journal of Technology and Design Education, 29*(2), 263–282. https://doi.org/10.1007/s10798-018-9449-0

45. Liu, Y. (2022). Application of digital technology in intangible cultural heritage protection. *Mobile Information Systems, 2022*, 7471121. https://doi.org/10.1155/2022/7471121

46. Liu, Y., Shi, R., Peng, Y., Wang, W., & Fu, X. (2022). Impacts of technology training provided by agricultural cooperatives on farmers' adoption of biopesticides in China. *Agriculture, 12*(3), 316. https://doi.org/10.3390/agriculture12030316

47. Liu, X., & Zhang, X. (2023). The impact of the digital economy on high-quality development of specialized farmers' cooperatives: Evidence from China. *Sustainability, 15*(10), 7958. https://doi.org/10.3390/su15107958

48. Luo, J., Guo, H., & Jia, F. (2017). Technological innovation in agricultural co-operatives in China: Implications for agro-food innovation policies. *Food Policy, 73*, 19–33. https://doi.org/10.1016/j.foodpol.2017.09.001

49. Lv, S., Du, Y., & Liu, Y. (2022). How do fintechs impact banks' profitability?—An empirical study based on banks in China. *FinTech, 1*(2), 155–163. https://doi.org/10.3390/fintech1020012

50. Majee, W., & Hoyt, A. (2011). Cooperatives and community development: A perspective on the use of cooperatives in development. *Journal of Community Practice, 19*(1), 48–61. https://doi.org/10.1080/10705422.2011.550260

51. Martínez-López, I., Fernández-Barcala, M., & González-Díaz, M. (2023). Unraveling agricultural cooperatives' performance measurement: A literature review. *International Food and Agribusiness Management Review, 27*(2), 1–30. https://doi.org/10.22434/ifamr2023.0054

52. Maskur, A. (2016). Local government action for developing primary cooperatives in Indonesia. *Procedia - Social and Behavioral Sciences, 219*, 499–506. https://doi.org/10.1016/j.sbspro.2016.05.026

53. Mhembwe, S., & Dube, E. (2017). The role of cooperatives in sustaining the livelihoods of rural communities: The case of rural cooperatives in Shurugwi District, Zimbabwe. *Jamba: Journal of Disaster Risk Studies, 9*(1), 341. https://doi.org/10.4102/jamba.v9i1.341

54. Miranda, M. Q., Farias, J. S., de Araújo Schwartz, C., & de Almeida, J. P. L. (2016). Technology adoption in diffusion of innovations perspective: Introduction of an ERP system in a non-profit organization. *RAI: Revista de Administração e Inovação, 13*(1), 48–57. https://doi.org/10.1016/j.rai.2016.02.002

55. Mirón-Sanguino, Á. S., & Díaz-Caro, C. (2022). The agricultural cooperative as an instrument for economic development: An approach from Spanish investors' preferences through a choice experiment. *Agronomy, 12*(3), 560. https://doi.org/10.3390/agronomy12030560

56. Moral, A. M., & Uclés, D. F. (2022). The agricultural cooperative in the face of the challenges of globalization, sustainability and digitalization. *Agriculture, 12*(3), 424. https://doi.org/10.3390/agriculture12030424

57. Nabela, H. R., & Rianto, P. (2020). The use of new media technology in families and its impact on intimacy. *Asian Journal of Media and Communication, 4*(2), 87–98. https://doi.org/10.20885/asjmc.vol4.iss2.art3

58. Nguyen, T. T., Do, M. H., Rahut, D. B., Nguyen, V. H., & Chhay, P. (2023). The impact of internet use on the performance of agricultural cooperatives in Vietnam. *MPRA Paper No. 117274*. University Library of Munich, Germany. Retrieved from https://mpra.ub.uni-muenchen.de/117274/1/Working_Paper_2023.pdf

59. Nirmal, A., & Bikram, P. S. (2015). Financial literacy and co-operatives sustainability: A study among the executive members of the co-operatives. *International Journal of Community and Cooperative Studies, 3*(3), 17–29. Retrieved from http://www.eajournals.org/wp-content/uploads/Financial-Literacy-and-Co-Operatives-Sustainability-A-Study-among-the-Executive-Members-of-the-Co-Operatives.pdf

60. Nuansri, A., Datta, A., Tsusaka, T. W., & Zulfiqar, F. (2024). Factors influencing the profit and choice of agribusiness for agricultural cooperatives in Thailand. *Journal of International Development, 36*(1), 751–772. https://doi.org/10.1002/jid.3836

61. Obilor, E. I., & Amadi, E. C. (2018). Test for significance of Pearson's correlation coefficient (*r*). *International Journal of Innovative Mathematics, Statistics & Energy Policies, 6*(1), 11–23. Retrieved from https://www.researchgate.net/publication/323522779_Test_for_Significance_of_Pearson's_Correlation_Coefficient

62. Ogah, O. M., Ikyereve, F. T., & Ogebe, F. O. (2020). Analysis of risks in financing agriculture a case of agricultural cooperatives in Benue State, Nigeria. International *Journal of Agricultural Science, Research and Technology in Extension and Education Systems, 10*(2), 81–86. Retrieved from https://sanad.iau.ir/en/Article/1033679

63. Paula de Oliveira, O., & Wander, A. E. (2022). Agricultural cooperative system: Management challenges and feasible solutions. *Revista de Administração da UFSM, 15*(3), 411–433. https://doi.org/10.5902/1983465968884

64. Pratikno, R. V., & Pattinussa, J. M. Y. (2022). Food and agricultural product industry as the economic defence for Indonesia's COVID-19 economic crisis. *Verity: Jurnal Ilmiah Hubungan Internasional, 14*(27), 69–81. http://dx.doi.org/10.19166/verity.v14i27.5906

65. Pulungan M. S., & Sardjono A. (2021). Familyhood principle and the cooperatives ideas in economic provisions in the Indonesian constitution. *REVESCO. Revista de Estudios Cooperativos, 137*, e73860. https://doi.org/10.5209/reve.73860

66. Purnomo, M. (2011). Adopsi teknologi oleh usaha mikro, kecil dan menengah. *Jurnal Dinamika Manajemen, 2*(2), 109–117. Retrieved from https://journal.unnes.ac.id/nju/index.php/jdm/article/view/2475

67. Rachinger, M., Rauter, R., Müller, C., Vorraber, W., & Schirgi, E. (2019). Digitalization and its influence on business model innovation. *Journal of Manufacturing Technology Management, 30*(8), 1143–1160. https://doi.org/10.1108/JMTM-01-2018-0020

68. Ramadania, R., Rosnani, T., Fauzan, R., & Darma, D. C. (2021). The study of perceived risk and e-service convenience towards satisfaction and trust of online academic users in Indonesia. *International Journal of Media and Information Literacy, 6*(2), 387–395. https://doi.org/10.13187/ijmil.2021.2.387

69. Ratner, B. (2009). The correlation coefficient: Its values range between +1/−1, or do they?. *Journal of Targeting, Measurement and Analysis for Marketing, 17*(2), 139–142. https://doi.org/10.1057/jt.2009.5

70. Roztocki, N., Sojac, P., & Weistroffer, H. R. (2019). The role of information and communication technologies in socioeconomic development: Towards a multi-dimensional framework*. *Information Technology for Development, 25*(2), 171–183. https://doi.org/10.1080/02681102.2019.1596654

71. Salehi, A., & Rasoulaizar, S. (2019). Determining the factors effective the effectiveness of agricultural mechanization cooperatives by confirmatory factor analysis. *International Journal of Agricultural Science, Research and Technology in Extension and Education Systems, 9*(4), 189–197. Retrieved from https://journals.iau.ir/article_671827.html

72. Sari, N. N. (2022). The use of technology acceptance model to explain brand attitude and loyalty intention in e-commerce: The gamification case. *ASEAN Marketing Journal, 14*(1), 72– 96. https://doi.org/10.21002/amj.v14i1.1151

73. Ševarlić, M. M., & Nikolić, M. M. (2013). Agricultural cooperatives – Examples of good practise in the World and Serbia. *The 50th Anniversary Seminar, Agriculture and Rural Development - Challenges of Transition and Integration Processes*. September 27, 2013 161799, University of Belgrade, Department of Agricultural Economics, Faculty of Agriculture. Retrieved from https://doi.org/10.22004/ag.econ.161799

74. Siregar, A. P., Jamhari, J., & Waluyati, L. R. (2020). Data updates in the efficiency measurement of cooperatives in Indonesia. *Agrisocionomics: Jurnal Sosial Ekonomi Pertanian, 4*(2), 206–216. https://doi.org/10.14710/agrisocionomics.v4i2.7465

75. Soetriono, S., Soejono, D., Zahrosa, D. B., Maharani, A. D., & Hanafie, R. (2019). Strategy and policy for strengthening the agricultural cooperative business in East Java, Indonesia. *Journal of Socioeconomics and Development, 2*(1), 12–22. https://doi.org/10.31328/jsed.v2i1.886

76. Straub, E. T. (2009). Understanding technology adoption: Theory and future directions for informal learning. *Review of Educational Research, 79*(2), 625–649. https://doi.org/10.3102/0034654308325896

77. Sundberg, L. (2019). The relation between digital technology and values: Thinking through multiple technologies. *Doctoral Thesis No. 308*. Department of Information Systems and Technology, Mid Sweden University, Sundsvall, Sweden. Retrieved from http://www.diva-portal.org/smash/get/diva2:1371237/FULLTEXT01.pdf

78. Suprehatin, S. (2021). Determinants of agricultural technology adoption by smallholder farmers in developing Countries: Perspective and prospect for Indonesia. *Jurnal Penelitian dan Pengembangan Pertanian*, *40*(1), 21–30. https://doi.org/10.21082/jp3.v40n1.2021.p21-30

79. Susilowati, E., Oktaviani, R., Arifin, B., & Arkeman, Y. (2014). The evaluation of cooperative's role in soybean supply chain: A Case study on tofu and tempeh cooperatives in Indonesia. *BISNIS & BIROKRASI: Jurnal Ilmu Administrasi dan Organisasi*, *21*(2), 121–127. https://doi.org/10.20476/jbb.v21i2.4325

80. Tortia, E. C., Valentinov, V., & Iliopoulos, C. (2013). Agricultural cooperatives. *Journal of Entrepreneurial and Organizational Diversity*, *2*(1), 23–36. http://dx.doi.org/10.5947/jeod.2013.002

81. Tripathi, A. K. (2017). Hermeneutics of technological culture. *AI and Society*, *32*(2), 137–148. https://doi.org/10.1007/s00146-017-0717-4

82. Trisniarti, N., Sofyana, N. N., & Azhari, A. (2022). The contribution of cooperatives to the Indonesian economy. *Almana: Jurnal Manajemen dan Bisnis*, *6*(3), 452–459. https://doi.org/10.36555/almana.v6i3.1927

83. Utomo, R. P., Kuleh, Y., & Darma, D. C. (2023). Conventional vs modern: Which approach is better for the success of agricultural cooperatives?. *Agricultural and Resource Economics: International Scientific E-Journal*, *9*(4), 26–49. https://doi.org/10.51599/are.2023.09.04.02

84. Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Dong, J. Q., Fabian, N., & Haenlein, M. (2021). Digital transformation: A multidisciplinary reflection and research agenda. *Journal of Business Research*, *122*, 889–901. https://doi.org/10.1016/j.jbusres.2019.09.022

85. Wijaya, A., & Kurniawan, E. (2022). *Ekonomi koperasi: Ekspedisi, dinamika dan tinjauan di Indonesia*. Malang: Madza Media.

86. Wijaya, A., Jiuhardi, J., ZA, S. Z., Nurjanana, N., & Kurniawan, E. (2023). Determinants on small scale business: An empirical evidence from Indonesia. *International Journal of Sustainable Development and Planning*, *18*(1), 305–314. https://doi.org/10.18280/ijsdp.180132

87. Wulandhari, N. B. I., Gölgeci, I., Mishra, N., Sivarajah, U., & Gupta, S. (2022). Exploring the role of social capital mechanisms in cooperative resilience. *Journal of Business Research*, *143*, 375–386. https://doi.org/10.1016/j.jbusres.2022.01.026

88. Xie, K., Wu, Y., Xiao, J., & Hu, Q. (2016). Value co-creation between firms and customers: The role of big data-based cooperative assets. *Information & Management*, *53*(8), 1034–1048. https://doi.org/10.1016/j.im.2016.06.003

89. Yakob, S., Rusli, R. Z. A., Yakob, R., & Hafizuddin-Syah, B. A. M. (2021). Financial literacy and financial performance of small and medium-sized enterprises. *The South East Asian Journal of Management*, *15*(1), 72–96. https://doi.org/10.21002/seam.v15i1.13117

90. Yang, D., Zhang, H-W., Liu, Z-M., & Zeng, Q. (2021). Do cooperatives participation and technology adoption improve farmers' welfare in China? A joint analysis accounting for selection bias. *Journal of Integrative Agriculture*, *20*(6), 1716–1726. https://doi.org/10.1016/S2095-3119(20)63325-1

91. Yang, W., Chu, C.-C., Yang, J., & Ye, X. (2023). The impact of internet finance on the profit efficiency of commercial banks: Theory and evidence from China. *SAGE Open*, *13*(1), 1–15. https://doi.org/10.1177/21582440231158050

92. Yuhertiana, I., Zakaria, M., Suhartini, D., & Sukiswo, H. W. (2022). Cooperative resilience during the pandemic: Indonesia and Malaysia evidence. *Sustainability*, *14*(10), 5839. https://doi.org/10.3390/su14105839

93. Zhang, F., Sarkar, A., & Wang, H. (2021). Does internet and information technology help farmers to maximize profit: A cross-sectional study of apple farmers in Shandong, China. *Land*, *10*(4), 390. https://doi.org/10.3390/land10040390

94. Zhang, J., Luo, J., & Li, J. (2021). Agricultural co-operatives participating in supply chain integration in China: A qualitative comparative analysis. *PloS ONE*, *16*(4), e0250018. https://doi.org/10.1371/journal.pone.0250018

95. Zhang, S., Sun, Z., Ma, W., & Valentinov, V. (2020). The effect of cooperative membership on agricultural technology adoption in Sichuan, China. *China Economic Review*, *62*, 101334. https://doi.org/10.1016/j.chieco.2019.101334

96. Zhang, Y., & Geng, H. (2012). An analysis on distribution of cooperative profit in supply chain based on multi-agent. *Physics Procedia*, *33*, 698–704. https://doi.org/10.1016/j.phpro.2012.05.123

97. Zhu, X., & Wang, G. (2024). Impact of agricultural cooperatives on farmers' collective action: A study based on the socio-ecological system framework. *Agriculture*, *14*(1), 96. https://doi.org/10.3390/agriculture14010096