



# Effect of Use of Tacit Knowledge Transfer Techniques on Organizational Performance of Kenya Agricultural and Livestock Research Organization Researchers

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## Authors' contributions

*This work was carried out in collaboration among all authors. All the authors designed the study, discussed and developed the data collection tool, analyzed the data and jointly contributed to the final manuscript.*

## Article Information

DOI: 10.9734/AJAEES/2022/v40i1031103

## Open Peer Review History:

This journal follows the Advanced Open Peer Review policy. Identity of the Reviewers, Editor(s) and additional Reviewers, peer review comments, different versions of the manuscript, comments of the editors, etc are available here: <https://www.sdiarticle5.com/review-history/89944>

**Original Research Article**

**Received 22 May 2022**  
**Accepted 27 July 2022**  
**Published 30 July 2022**

## ABSTRACT

Tacit knowledge is key in managing the performance of agricultural research organizations. This study analyzed the adequacy of tacit knowledge transfer techniques, how tacit knowledge transfer enables achievement of performance indicators of Kenya Agricultural and Livestock Research Organization (KALRO), and the nature of association between tacit knowledge transfer and researchers' performance. The study adopted a descriptive survey research design, used cluster sampling and a semi-structured questionnaire to collect data from 191 respondents in KALRO research centers. Data were analyzed using the Likert scale and Chi-square in Statistical Package for Social Sciences (SPSS) version 20. Collaborative research, workshops and seminars are the most adequate techniques for transferring tacit knowledge among agricultural researchers and enhancing their performance. Cognitive Self-Motivation, collective and local tacit knowledge are the most useful types of tacit knowledge in enhancing agricultural researchers' performance. Management of agricultural research projects and writing of research fund-winning proposals were the performance indicators that researchers were most enabled to attain by tacit knowledge. Chi-square showed that there was significant association between the types of tacit knowledge and

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performance of researchers. In conclusion, use of tacit knowledge transfer techniques enables researchers to achieve their organization's performance indicators and a significant positive association exists between tacit knowledge and researchers' performance. KALRO needs to encourage more use of the most employed techniques in management of agricultural research projects and writing of research fund winning proposals through workshops, seminars and its knowledge management policy.

*Keywords: Agricultural researcher; knowledge; tacit knowledge, transfer techniques; performance.*

## 1. INTRODUCTION

Tacit and explicit knowledge management and use are very important in affecting performance of agricultural research organizations and hence transforming national and global economies. Explicit type is knowledge that is articulated, written down, or published academic one found in books, manuals and papers and therefore codified, and transmittable in formal, systematic language [1,2]. Tacit knowledge on the other hand is knowledge embedded in minds of individuals in form of skills, know-how, expertise, experience, ideas, values, emotions, insight, and mental models that employees obtain as they interact and learn through organizational processes [3,4]. Although explicit knowledge is tangible, visible and often given more regard, tacit knowledge is its bedrock because before knowledge becomes explicit, it first exists as tacit. Due to the invisibility nature of tacit knowledge, most organizations mistakenly think, improvement in their organizational performance depends entirely on documented knowledge. In this way, they employ minimal effort to appreciate work done behind scenes by various types of tacit knowledge which include collective, relational, local, global and cognitive self-motivation tacit knowledge [5,6]. An organization that wants to sustain its improved performance needs to know the most adequate techniques its employees can use to pass on different types of tacit knowledge among themselves and how this affects their organizational performance. As indicated by [7-10], the tacit knowledge transfer techniques used by researchers in agricultural research organizations include Collaboration research, Mentorship, Seminars, Staff Meetings, Storytelling and workshops.

Previous studies including [9,11,7,8] on tacit knowledge transfer in agricultural research organizations in and outside Kenya did not address the effect of use of aforementioned techniques on organizational performance of researchers. In this way, information on how researchers in Kenyan Agricultural Research

Organizations including KALRO use mentioned techniques to transfer different types of tacit knowledge among themselves and how this affects their performance, is not well documented or known. Such information is very important and necessary to KALRO for coming up with strategic interventions on how tacit knowledge transfer among its researchers can be enhanced for the attainment of its performance indicators and ultimate improved research efforts. This study assessed the effect of use of tacit knowledge transfer techniques on organizational performance of KALRO' researchers by analyzing the adequacy of various tacit knowledge transfer techniques for transferring different types of tacit knowledge (TK), determining the usefulness of different types of TK in enhancing researchers' ability to perform. Further, this study established the extent to which KALRO performance indicators' achievement was enabled by tacit knowledge transfer, and ascertained the nature of association between tacit knowledge transfer and performance of KALRO researchers.

## 2. LITERATURE REVIEW

### 2.1 Types of Tacit Knowledge

Most studies on tacit knowledge transfer have addressed tacit knowledge as a single entity yet it is of different types including collective, relational, local, global and cognitive self motivation TK [5,6]. Relational TK refers to knowledge held in secrecy and whether it will be transferred depends on how those who need it relate with the knower. Such is the concealed scientific know-how behind technologies and innovations developed in agricultural research organizations. Collective TK is know-how held collectively by a given group of people such as employees about how they work. [12] indicates that employees have and use collective knowledge to deliver products and render service. Local TK refers to knowledge used to accomplish short-term tasks while global TK is know-how people use to fit long-range objectives

of their work into the bigger picture or processes of their organization. Cognitive self-motivation TK is know-how of behaviors (frame of mind) that invoke self-drive to deliver goals [13] and enable employees to meet performance targets [14].

## 2.2 Tacit Knowledge Transfer Techniques Used by Agricultural Researchers

Seminars are used by experts including agricultural researchers to transfer TK as they address specific topics, peer assist meetings are held to seek advice and expertise of peers on a given issue, and After Action Reviews are used to review project events so far accomplished [15] and they involve facilitators, writers, and subject matter professionals [16]. Collaborative research as put by [10] involves researchers, institutions, organizations working together in a coordinated manner to achieve agreed upon objectives. Communities of practice as indicated by [17] involve people with similar concerns who interact regularly in group settings to exchange ideas on best practices in their areas of interest. While [18] indicate that job rotation is neither common in agricultural research nor among the factors for removing discomfort among researchers, [19] indicated that it is an effective method for passing on tacit knowledge in an organization. Retrospective meetings are held at the end of a project or major piece of work to allow working team members to share their experiences, lessons learnt just like [20] indicates that they facilitate shared learning in a team or an organization after an event. In an agricultural research setting, retrospective meetings take a form of end of projects conferences. Knowledge interviews are an avenue where experts such as agricultural researchers are interviewed about their line of work during their tenure or when about to exit. Mentorship is used by mentors to transfer tacit knowledge in a given work area to those they guide. Mentorship is a useful way to transfer and increase knowledge [21]. Storytelling involves transferring tacit knowledge through stories about work experiences [22,23]. Workshops are an interaction opportunity that enhances understanding [24] and agricultural researchers transfer tacit knowledge through them as they compile information materials.

## 2.3 Tacit Knowledge Transfer in Agricultural Research Organizations

[8], on "Knowledge management strategies and practices in Nigerian Agricultural Research Institutes", addressed the techniques through

which TK is generated but did not cover how researchers use them to transfer different types of tacit knowledge among themselves and how it affected their performance. [7], looked at retention and use of knowledge in agricultural research institutions in Uganda, and asserted that knowledge can be retained through continuous acquisition, capturing and storing, using knowledge sharing techniques, availing and applying knowledge. Although this study mentioned the techniques for retaining knowledge, it did not cover how researchers use them to transfer different types of TK and the effect thereof on their performance. [11] addressed the role of Knowledge Management Systems (KMS) in retaining tacit knowledge in Kenyan research institutes and stressed the need to use them in retaining TK but were silent on retention of its different types among researchers through use of various transfer techniques. [9] on knowledge sharing practices among crop researchers in former Kenya.

Agricultural Research Institute, looked at general methods of sharing knowledge but did not cover how researchers used them to transfer different types of TK and how this affected their performance.

## 2.4 Tacit Knowledge Transfer Techniques' Effect on Organizational Performance Indicators

The effect of TK transfer techniques on employees can be measured by how they enable them meet their organization's performance indicators. Similarly, the effect of use of transfer techniques on KALRO researchers' performance is determined by the extent to which they are enabled by tacit knowledge to achieve KALRO's performance indicators; Generation of agricultural technologies and innovations, Provision of technical services, and Packaging and provision of knowledge, information and technologies on agricultural products [25]. Further, based on performance indicators reported by [26] for selected Universities in Kenya, "writing research proposals that win funding" and "management of research projects" too qualify to be among performance indicators of a research organization such as KALRO.

## 2.5 Conceptual Framework

This study was based on the Knowledge Spiral Model by Nonaka et al. (2000), which specifies

that knowledge converts from one type to another through four modes; Tacit to Tacit (Socialization), Tacit to Explicit (Externalization), Explicit to Explicit (Combination) and Explicit to Tacit (Internalization). When KALRO researchers transfer tacit knowledge to each other, they do so through “Tacit to Tacit” process and on this basis, this theory becomes the bedrock on which this study is founded. Figure 1 shows the relationship between use of tacit knowledge (TK) transfer techniques as the independent variable and affects Researchers’ Organizational Performance (ROP) as the dependent variable to end up with Improved Organizational Research Efforts as output.

### 3. RESEARCH METHODOLOGY

This study was done in KALRO centers. KALRO is a corporation mandated to undertake and regulate agricultural research in Kenya. This study adopted a descriptive survey research design and targeted a population of 402 researchers from who a sample size of 201 was calculated at a confidence level of 95% (alpha level of 0.05) using [27] formula as indicated below:

$$n = \frac{N}{1 + Ne^2} = \frac{402}{1 + (402 \times 0.05^2)} = \frac{402}{2.01} = 201$$

In this formula, **n** is the sample size, **N** is the population size, **e** is the precision or significance level.

This study adopted cluster sampling method since KALRO centers already existed as clusters dispersed across the country. One hundred and ninety one (191) KALRO researchers filled an online semi-structured questionnaire and this

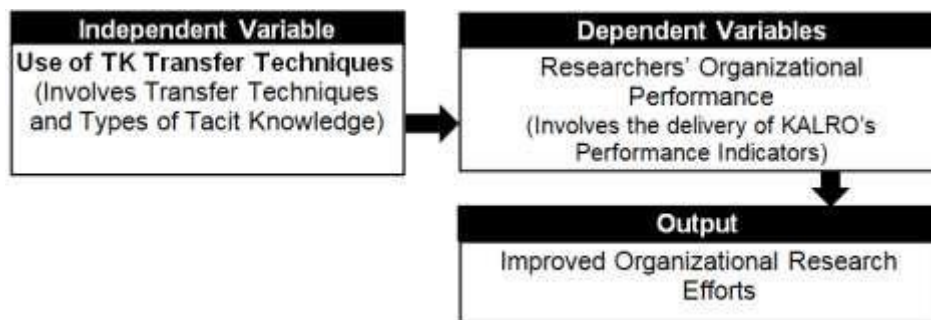
was a response rate of 95%. The data collected was on the techniques these researchers use to transfer different types of tacit knowledge among themselves, and on the extent they were enabled by tacit knowledge to achieve KALRO’s performance indicators. This data were analyzed using the Likert scale and Chi-square in the Statistical Package for Social Sciences (SPSS) version 20.

### 4. RESULTS AND DISCUSSION

The transfer techniques differed in their adequacy in passing on the types of tacit knowledge and in enhancing the researchers’ ability to perform. The types of tacit knowledge also varied in their usefulness in enhancing researchers’ ability to perform and their transfer among researchers had a positive significant effect on their performance.

#### 4.1 Adequacy of Techniques for Transferring Different Types of Tacit Knowledge

Researchers were subjected to a Likert perception test where they were asked to indicate (on a 5-point Likert scale: 1 = Not Adequate, 2 = Neutral, 3 = Adequate, 4 = Very Adequate, 5 = Extremely Adequate) the extent to which they found each technique to be adequate for transferring different types of tacit knowledge to each other. The “Not Adequate” and “Neutral” results were retained as such, while those for 3 = Adequate, 4 = Very Adequate, 5 = Extremely Adequate were combined to form the final Adequate opinion. The techniques with the highest percentage for the final adequate (Adequate) opinion were denoted as the most used and adequate for transferring respective types of tacit knowledge



**Fig. 1. Conceptual framework**  
(Source: Authors (2022))

**4.1.1 Techniques used to transfer cognitive self-motivation tacit knowledge**

As per the ranking in Table 1, the three most used and adequate techniques in passing on Cognitive Self-Motivation tacit knowledge to enhance researchers' ability to perform were collaborative research, workshops and seminars. Collaborative research was the most adequate technique (90.6%) and this agreed with that of [28] that collaboration provides an avenue for stakeholders to create new knowledge.

techniques for transferring collective tacit knowledge among KALRO researchers. Workshops were the first and this coincided with the findings by [29] that workshops help in the transfer of tacit knowledge and they are an opportunity for interaction that enhances understanding [24]. This meant that KALRO researchers were most adequately imparted with collective tacit knowledge during work related workshops which could have been for specific disciplines and hence for passing on collective tacit knowledge mostly.

**4.1.2 Techniques used to transfer collective tacit knowledge**

As shown in Table 2, Workshops (81.7%). Collaborative research (80.6%) and Seminars (76.4%) were the most used and adequate

**4.1.3 Techniques used to transfer local tacit knowledge**

As per results in Table 3, Collaborative research (76.4%) and Workshops (76.4%) were the most used and adequate techniques for transferring

**Table 1. Adequacy of techniques used to pass on cognitive self-motivation tacit knowledge**

Tacit Knowledge Transfer Techniques	Frequency			Percentage (%)			Rank
	NA	N	A	NA	N	A	
Collaborative Research	1	17	173	0.5	8.9	90.6	1
Workshops	7	29	155	3.7	15.2	81.2	2
Seminars	6	30	155	3.1	15.7	81.2	3
Retrospective meetings	9	32	150	4.7	16.8	78.5	4
After Action Reviews	8	34	149	4.2	17.8	78.0	5
Staff meetings	9	42	140	4.7	22.0	73.3	6
Peer Assist Meetings	13	39	139	6.8	20.4	72.8	7
Communities of Practice	11	45	135	5.8	23.6	70.7	8
Mentorship	6	59	126	3.1	30.9	66.0	9
Storytelling	33	50	108	17.3	26.2	56.5	10
Knowledge Interviews	56	56	79	29.3	29.3	41.4	11
Job Rotation	47	73	71	24.6	38.2	37.2	12

NA= Not Adequate, N= Neutral, A= Adequate

**Table 2. Adequacy of techniques used to transfer collective tacit knowledge**

Tacit Knowledge Transfer Techniques	Frequency			Percentage (%)			Rank
	NA	N	A	NA	N	A	
Workshops	7	28	156	3.7	14.7	81.7	1
Collaborative Research	5	32	154	2.6	16.8	80.6	2
Seminars	5	40	146	2.6	20.9	76.4	3
Peer Assist Meetings	11	38	142	5.8	19.9	74.3	4
Retrospective meetings	12	41	138	6.3	21.5	72.3	5
After Action Reviews	11	46	134	5.8	24.1	70.2	6
Staff meetings	10	50	131	5.2	26.2	68.6	7
Mentorship	10	51	130	5.2	26.7	68.1	8
Communities of Practice	17	56	118	8.9	29.3	61.8	9
Storytelling	34	55	102	17.8	28.8	53.4	10
Knowledge Interviews	40	63	88	20.9	33.0	46.1	11
Job rotation	55	70	66	28.8	36.6	34.6	12

NA= Not Adequate, N= Neutral, A= Adequate

local tacit knowledge among KALRO researchers followed by Seminars (73.3%). This meant that researchers acquired knowledge on how to undertake specific short-term tasks to achieve their own and organizational goals. Further, this showed that researchers interacted more during collaborative research, and convert their existing tacit knowledge to new tacit knowledge according to [2], and this happens at individual or local level. This concurs with what Blume reported that employees' performance involves achieving their own goals and those of their organization.

**4.1.4 Techniques used to transfer relational tacit knowledge**

As indicated in Table 4, Collaborative research (74.9%) was the most adequate technique followed by Workshops (73.3%) and Seminars

(71.2%) in transferring Relational tacit knowledge among researchers and enhancing their ability to perform. This meant that each researchers acquired new concealed tacit knowledge behind scientific discoveries in line with what [28] put that a collaboration provide an avenue for stakeholders to create new knowledge.

**4.1.5 Techniques used to pass on global tacit knowledge**

As shown in Table 5, Workshops (81.7%) were the most adequate technique in transferring global tacit knowledge among researchers and were followed by Collaborative Research (78%) and Seminars (72.3%). This indicated that researchers acquired global tacit knowledge more through workshops. This coincides with what [29] found that workshops help in transferring tacit knowledge.

**Table 3. Adequacy of techniques used to transfer local tacit knowledge**

Tacit Knowledge Transfer Techniques	Frequency			Percentage (%)			Rank
	NA	N	A	NA	N	A	
Collaborative Research	4	41	146	2.1	21.5	76.4	1
Workshops	10	35	146	5.2	18.3	76.4	2
Seminars	11	40	140	5.8	20.9	73.3	3
After Action Reviews	12	47	132	6.3	24.6	69.1	4
Retrospective meetings	11	50	130	5.8	26.2	68.1	5
Peer Assist Meetings	10	52	129	5.2	27.2	67.5	6
Mentorship	16	48	127	8.4	25.1	66.5	7
Communities of Practice	12	57	122	6.3	29.8	63.9	8
Staff meetings	15	59	117	7.9	30.9	61.3	9
Storytelling	37	64	90	19.4	33.5	47.1	10
Knowledge Interviews	35	66	90	18.3	34.6	47.1	11
Job rotation	61	63	67	31.9	33.0	35.1	12

NA= Not Adequate, N= Neutral, A= Adequate

**Table 4. Adequacy of techniques used to transfer relational tacit knowledge**

Tacit Knowledge Transfer Techniques	Frequency			Percentage (%)			Rank
	NA	N	A	NA	N	A	
Collaborative Research	9	39	143	4.7	20.4	74.9	1
Workshops	16	35	140	8.4	18.3	73.3	2
Seminars	13	42	136	6.8	22.0	71.2	3
Retrospective meetings	18	39	134	9.4	20.4	70.2	4
Peer Assist Meetings	15	48	128	7.9	25.1	67.0	5
Communities of Practice	20	45	126	10.5	23.6	66.0	6
Mentorship	20	48	123	10.5	25.1	64.4	7
After Action Reviews	23	59	109	12.0	30.9	57.1	8
Staff meetings	28	54	109	14.7	28.3	57.1	9
Knowledge Interviews	39	52	100	20.4	27.2	52.4	10
Storytelling	42	60	89	22.0	31.4	46.6	11
Job rotation	61	63	67	31.9	33.0	35.1	12

NA= Not Adequate, N= Neutral, A= Adequate

**Table 5. Adequacy of techniques used to transfer global tacit knowledge**

Tacit Knowledge Transfer Techniques	Frequency			Percentage (%)			Rank
	NA	N	A	NA	N	A	
Workshops	5	30	156	2.6	15.7	81.7	1
Collaborative Research	5	37	149	2.6	19.4	78.0	2
Seminars	7	46	138	3.7	24.1	72.3	3
After Action Reviews	12	53	126	6.3	27.7	66.0	4
Peer Assist Meetings	11	56	124	5.8	29.3	64.9	5
Retrospective meetings	10	58	123	5.2	30.4	64.4	6
Communities of Practice	14	54	123	7.3	28.3	64.4	7
Staff meetings	12	62	117	6.3	32.5	61.3	8
Mentorship	15	63	113	7.9	33.0	59.2	9
Knowledge Interviews	40	66	85	20.9	34.6	44.5	10
Storytelling	42	69	80	22.0	36.1	41.9	11
Job rotation	58	65	68	30.4	34.0	35.6	12

NA= Not Adequate, N= Neutral, A= Adequate

**Table 6. Usefulness of tacit knowledge in enhancing researchers' performance**

Types of Tacit Knowledge	Frequency			Percentage (%)			Rank
	NU	N	U	NU	N	U	
Cognitive Self-Motivation Tacit Knowledge	0	13	178	0.0	6.8	93.2	1
Collective Tacit Knowledge	0	20	171	0.0	10.5	89.5	2
Local Tacit Knowledge	1	28	162	0.5	14.7	84.8	3
Relational Tacit Knowledge	4	29	158	2.1	15.2	82.7	4
Global Tacit Knowledge	0	40	151	0.0	20.9	79.1	5

NU = Not Useful, N = Neutral, U = Useful

**Table 7. Performance indicators ranked based on how their achievement was enabled by tacit knowledge**

Performance Indicators	Frequency			Percentage (%)			Rank
	NE	N	E	NE	N	E	
Management of Agricultural Research Projects	5	14	172	2.6	7.3	90.1	1
Writing Research Fund Winning Proposals	6	19	166	3.1	9.9	86.9	2
Agricultural Technologies and Innovations Generation	2	27	162	1	14.1	84.8	3
Knowledge, Information and Technologies Packaging	4	26	161	2.1	13.6	84.3	4
Provision of Technical Services	5	38	148	2.6	19.9	77.5	5

NE = Not Enabled, N = Neutral, E = Enabled

#### 4.2 Usefulness of the Types of Tacit Knowledge in Enhancing Researchers' Performance

The study sought to know how different types of tacit knowledge ranked in their usefulness in enhancing KALRO researchers' performance. A 5-point Likert scale (1 = Not Useful, 2 = Neutral, 3 = Useful, 4 = Strongly Useful, 5 = Extremely Useful) was used and results for 1 = Not Useful and 2 = Neutral were retained as such, while for

3 = Useful, 4 = Strongly Useful, 5 = Extremely Useful were combined into a final "Useful" perception as shown in Table 6.

Cognitive self-motivation (93.2%) was the most useful type of tacit knowledge in enhancing researchers' performance meaning that researchers' ability to perform was improved most by self-drive invoking behaviors. This concurred with [14] that self-drive empowers employees to achieve goals. Collective tacit

**Table 8. Association between tacit knowledge and performance of researchers**

<b>Transferred types of tacit knowledge</b>	<b>Chi-Square (x2) Association Researchers' Performance</b>	<b>P≤Value</b>
Local Tacit Knowledge	79.307	0.000***
Cognitive self-motivation Tacit Knowledge	62.663	0.000***
Collective Tacit Knowledge	53.787	0.000***
Global Tacit Knowledge	48.702	0.000***
Relational Tacit Knowledge	46.773	0.000***

\*\*\* - significant at  $p < 0.001$



knowledge (89.5%) was the second most useful in enhancing researchers' ability to perform indicating that researchers gained tacit knowledge of how work in their fields is done and this resonated with [12] that employees have and collective knowledge which they use to deliver products or services. Local tacit knowledge (84.8%) was the third in enhancing researchers' performance. This means that researchers acquired tacit knowledge on how to undertake short-term tasks at work and also achieve their own goals at individual level thus concurring with Blume (2010) that employees' performance involves employee achieving their own goals and those of their organization. Relational tacit knowledge (82.7%) was fourth in this enhancement and this showed that researchers related well among themselves to acquire concealed know-how behind the various technologies and innovations. Global tacit knowledge (79.1%) was fifth in enhancing researchers' ability to perform and this indicated that this majority of researchers acquired tacit knowledge on how to align long-range objectives of their research projects with the bigger picture of KALRO.

### 4.3 Performance Indicators' Achievement Enabled by Tacit Knowledge

The study sought to establish the extent to which KALRO performance indicators' achievement by researchers was enabled by use of tacit knowledge transfer techniques. A 5-point Likert scale: (1 = Not enabled, 2 = Neutral, 3 = Enabled, 4 = Strongly Enabled, 5 = Extremely Enabled), was used in this process and results for 1 = Not enabled, 2 = Neutral results were retained as such, while those for 3 = Enabled, 4 = Strongly Enabled, 5 = Extremely Enabled were combined into the enabled perception as shown in Table 7.

As shown in Table 7, management of agricultural research projects (90.1%) meant that tacit knowledge researchers acquired from use of TK transfer techniques empowered them to manage projects. This means that this magnitude of researchers understood how to manage projects through tacit knowledge acquired through workrelated workshops and this concurs with [24] that workshops are an interaction opportunity that enhances understanding. Writing research fund winning proposals (86.9%) meant that tacit knowledge empowered researchers to write proposals thus concurring with what [26] found that tacit knowledge in form of technical knowhow is an enabler in writing proposals that

attract funds. Agricultural technologies and innovations generation was at (84.8%) indicating that its achievement was enabled by tacit knowledge thus concurring with [8] who reported that knowledge generated in Nigerian Agricultural Research Institutes was mainly on managing various crops and their production through use of various tacit knowledge transfer techniques. Knowledge, Information and Technologies (KIT) Packaging (84.3%) showed that the tacit knowledge researchers acquired from their use of tacit knowledge transfer techniques enabled them to deliver this performance indicator thus coinciding with [26] that among the deliverables tacit knowledge contributes to organizational performance, include publications, collaborations and partnerships. Provision of technical services (77.5%) meant that researchers were enabled to provide knowledge that is distilled and context based for addressing real life issues as put by [30]

### 4.4 Association between Types of Tacit Knowledge and Researchers' Performance

The study found that a positive significant association exists between transferred types of tacit knowledge and researchers' performance. All types of tacit knowledge, as shown in Table 8, had a statistical significance of ( $p=0.000$ ), whereas each of them had a different Chi-Square value. Cognitive Self-Motivation tacit knowledge had ( $\chi^2=62.66$ ), Collective tacit knowledge ( $\chi^2=53.78$ ), Global tacit knowledge ( $\chi^2=48.70$ ), Local tacit knowledge ( $\chi^2=79.30$ ) and Relational tacit knowledge ( $\chi^2=46.77$ ). With p-values less than 0.05, transfer of these types of tacit knowledge among researchers had a positive significant effect on their performance and ultimately that of KALRO. This resonates with what [26, 31] indicated that tacit knowledge is a key asset in enabling organizational performance.

## 5. CONCLUSION AND RECOMMENDATION

The study concludes that use of tacit knowledge transfer techniques by agricultural researchers enhances their ability to perform and empowers them to achieve the performance indicators of their organization. Collaborative research, Workshops and Seminars are the most adequate techniques for transferring tacit knowledge among agricultural researchers and enhancing their performance. Cognitive Self-Motivation

know-how is the most useful type of tacit knowledge for enhancing agricultural researchers' performance followed by Collective, Local, Relational and Global types of tacit knowledge. The performance indicators that KALRO researchers are most enabled to achieve by tacit knowledge are management of agricultural research projects, writing of research fund-winning proposals, and generation of agricultural technologies and innovations. Furthermore, the study concludes that there is a positive significant association between transferred types of tacit knowledge and performance of agricultural researchers. In this way, each type of tacit knowledge transferred among these researchers positively affects their performance and ultimately that of KALRO.

The study recommends that the most employed techniques need to be used more in management of agricultural research projects and writing of research fund winning proposals through workshops and seminars. Further, this study recommends that policy makers in agricultural research organizations need to ensure their researchers participate in the most employed and adequate techniques for transferring tacit knowledge by putting in place policies that effect and facilitate further use of collaborative research, workshops and seminars.

## CONSENT

As per international standard or university standard, Participants' written consent has been collected and preserved by the author(s).

## ACKNOWLEDGEMENTS

Authors state that there were no sponsors to this study, the authors should so state.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

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