

## Influence Of Knowledge Sharing Strategy On Performance Of Public Research Institutions In Kenya

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### Abstract

Knowledge within organisations resides in different sources such as knowledge bases and employees and the most important task in knowledge is to create the best opportunities for information sharing between individuals and coordination of the knowledge that individuals possess. Knowledge has to be articulated in a way that other members of the organization can understand it. Organisations need to put mechanisms in place to capture, share and apply knowledge so that knowledge creation and innovation can be fostered. The study sought to interrogate the influence of the knowledge sharing strategies adopted by research firms publicly funded in Kenya as well as its influence on performance of publicly funded research institutions in Kenya. The study used a survey design with a target population of 6,799 employees in the 12 publicly funded research institutions in Kenya. The respondents were the researchers, heads of knowledge management and HR managers in the publicly funded research institutions in Kenya. The study obtained a sample size of 135 respondents and the respondents were selected using stratified random sampling technique. Data was collected from primary sources using a structured questionnaire and analyzed through descriptive statistics (mean scores, percentages and standard deviation) and inferential statistics (correlation and regression analysis). The findings indicated that knowledge sharing improves organizational performance in a significant manner. It was recommended that the policy makers of publicly funded research institutions in Kenya design and develop knowledge sharing policies and also transform into resource centers that can generate knowledge. These policies should focus on providing atmosphere for employee to maintain cordial close social relationships within their groups and also promote research social network. There should be freedom of interaction among employee. There should opportunity for employee to form sincere network through motivations and provision of satisfiers. There should sessions of discussions groups. Importantly, the institutions should clearly explain to the employees their mission and vision as well as goals and practice this.

**Key Words:** Knowledge Sharing, Public Research Institutions, Performance, Kenya

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### I. Introduction

Constant reconfiguration in the human resource increases the risk of loss of knowledge (Nijssen & Paauwe, 2013) and may lead to disconnection in an employee's valuable social network and relationships (Mohajan, 2016). Therefore, Nijssen and Paauwe (2013) name fast organizational knowledge creation and sharing as an important competency in an agile workforce. Similarly, Dyer and Shafer (2003) recognize the ability to continually create, adapt, distribute and apply knowledge and are also very critical in turbulent environments. Employees in agile organisations are found to excel in three types of behaviours. To achieve organization agility, employees from top to bottom must excel three main types of behaviours: proactive, adaptive, and generative. Aggressive behaviour means the active search for new opportunities that might increase the company's success and taking the lead in achieving those opportunities. According to Martins and Meyer (2012), knowledge retention can be defined as the ability to maintain knowledge already existing in people's minds and realizing that this is important to the overall functioning of the organization. According to Egeland (2017) due to changing workforce demographics (growth in the number of ageing workers in retiring while there is a reduction in the number of skilled youth to replace them), many organizations are approaching a crisis due to unprecedented ability to retain knowledge. Knowledge loss is the reduction of the capacity for effective action or decision making in a specific organisational context, according to Harvey, 2012. Knowledge retention is defined as maintaining, the knowledge that exists in the minds of people (tacit) and acknowledging that it is vital to the organisation's overall functioning (Martins & Meyer, 2012).

Organisations need to put mechanisms in place to capture, share and apply knowledge so that knowledge creation and innovation can be fostered. Knowledge within organisations resides in different sources such as knowledge bases and employees. According to Dalkir (2011), tacit knowledge is the knowledge that leaves at the end of the day. Therefore, this study will focus on tacit knowledge that leaves with the employees

when they depart from their organizations. Most employees who were born in the late 1940s up to 1964, the so-called ‘baby boomers’, are starting to retire in their numbers. Given the time difference between the demand for skills, experience and knowledge, and the ability of the educational system to provide them, companies will continue to experience a skills shortage in the fast-growing technical fields. Knowledge is shared when two or more individuals, groups or organizations communicate information to each other in two-way communication (Jonsson, 2012). In this thesis, the term transfer will be used when the process is one-way, whereas the term sharing will be used when there is a two-way process. We chose to use the term sharing if the situation does not require the term transfer since we feel that sharing and two-way communication have more positive associations. Knowledge sharing is a business process that requires collective knowledge, skills, expertise and dissemination of knowledge across organizational units (Panahi, Watson & Partridge, 2012). Knowledge sharing is attributed to a social interaction culture involving the exchange of employee knowledge, experience and skills within the organization (Ozdemir&Raic, 2015).

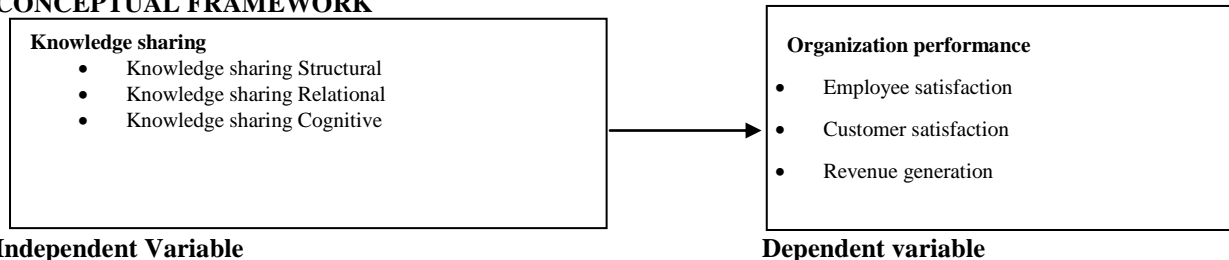
According to Panahiet al. (2012), knowledge sharing comprises a set of shared understanding related to providing employees access to relevant information and using knowledge networks within organizations. Panahiet al. (2012) suggest the most important task in knowledge is to create the best opportunities for information sharing between individuals and coordination of the knowledge that individuals possess. Knowledge has to be articulated in a way that other members of the organization can understand it.

In Kenya, some critical cadres in the publicly funded research institutions in Kenya have been experiencing high staff turnover as the staff leave the Civil Service to take up employment both within and outside the Country. This causes a shortage of staff and compromises service delivery (Wario, 2012). A Human Resource Audit conducted in Kenya at National and County levels in 2014/15, under the Capacity Assessment and Rationalization of the Public Service (CARPS) Programme revealed that the Service is faced with an ageing workforce. This is where 31% of staff at both the National and County Governments level are aged between 50 and 59 years, while 30% are in the age bracket of 40 to 49 years. Republic of Kenya Human resource planning and Succession management strategy for the public service (February 2017). Oyefolahan (2012) acknowledges that Knowledge sharing is scarce in public research institutions and staff members find it difficult to share their knowledge with their colleagues. Knowledge sharing practices should be introduced and implemented to improve knowledge sharing and transfer in publicly funded research institutions in Kenya. He further states the extent to which users are willing to share using the system has been identified as one of the key factors in determining system effectiveness. Omotayo, (2015) contends that organisational performance will be affected due to loss of expertise, on-job knowledge, client intelligence, internal and external networks and social and networking skills.

Although knowledge is becoming the most important resource for driving research institutions performance, many institutions, are continuously losing significant valuable expert knowledge hidden inside the leaving experts without being explicitly codified and retained by the former organization (Peterson. 2012; Mahajan, 2016). RITs having invested considerably in disseminating valuable knowledge for organisation performance, suffer the immense loss of knowledge after the departure of employees owing to a shortage of appropriate knowledge retention strategies. Most RITs lack adequate knowledge retention strategies necessary for retaining sophisticated, tacit knowledge that resides with employees (Durst & Wilhelm, 2012; Mohajan, 2016).

Past studies have shown; (Kimani, 2012) up to 75% of Kenya government-employed researchers leave employment three years after joining the public research institutions. The knowledge loss makes it difficult for these publicly funded research institutions to sustain their past competitive performance levels (Ernst & Young, 2015). Although there is a wide array of empirical studies on KM, the literature indicates that retaining knowledge from older experts in organisations is a relatively new area and as such it is not clear the relationship between knowledge retention and organisation performance (Egeland, 2017). There is therefore the need to devise strategies for knowledge retention to deal with the potential knowledge loss and to ensure retention of knowledge of retiring experts for sustainable improvement of organisation performance. It is against this backdrop that the present study sought to lock the gap by establishing the knowledge sharing strategies for retaining valuable organizational knowledge held by retiring experts.

### CONCEPTUAL FRAMEWORK



**Figure 1: Conceptual framework**

### **Knowledge Sharing**

Knowledge-sharing is vital for the survival of an organisation in a dynamic economy. Shared knowledge keeps the organisation alive and is used as a reference for future use by employees of the organisation. Shared knowledge allows learning and re-examination of the knowledge that was created, which is necessary for the organisation to have a competitive advantage (Munyua, 2011). Employees thus become innovative and there is quick responsiveness by the organization to new situations. Knowledge-sharing amongst employees contributes to the creation of new knowledge in the organisation, which is a critical activity that contributes to the success of the organisation as new knowledge becomes available for everyone in the organisation to take advantage of.

### **Structural Knowledge Sharing**

The structural dimension of knowledge sharing is the network ties (Nahapiet&Sumantra, 1998) and communication between members of a social network (Bolino, Turnley&Bloodgood, 2002). It acts as a medium for information flow and resource exchanges (Aslam, Shahzad, Syed &Ramish, 2013). Personal interactions through meetings, teamwork, emails or online discussion forums facilitate access to various knowledge sources among employees and such practices will develop the capabilities of the group through building and exchanging knowledge (Song &Chermack, 2008). Wang and Noe (2010) propose that such communities contribute to learning and sharing essential information. Since knowledge resides in employees' mind and sharing is based on the relationship they have, structures or networks are important considerations in knowledge sharing. Similarly, Hansen (1999) opine that as employees are sources of information, their ability to share and the level of sharing depends on the strength of their relationships. (Chiu, Hsu & Wang, 2006) further categorised social interaction ties into: (i) the relationships, (ii) time spent and (iii) frequency of interaction among employees.

### **Relational Knowledge Sharing**

Nahapiet and Sumantra (1998) define the relational dimension of knowledge sharing as trust, norms and commitment within the organization, which is based on relationships that the employees possess. Social needs (e.g. sociability, approval and prestige) require these relationships that can change employee values and their behaviour in terms of respect and friendship (Nahapiet&Sumantra, 1998), growth in trust (Chow & Chan, 2008) and promote identification among each other (Bolino et al., 2002). Thus, along with the network of relationships, the key elements of this dimension are: (i) trust, which is a promoter for social interaction and cooperation and it opens up avenues for knowledge sharing. Members of the organisation who trust one another are willing to share their knowledge since they have no fear of being exploited by the other members (Aslam et al., 2013). (ii) norm of reciprocity, which means knowledge sharing that is reciprocal (Chiu et al., 2006). It is assumed that knowledge sharing by a member is induced by the expectation that others would reciprocate the act when required (Aslam et al., 2013). (iii) identification process, which causes people to perceive they belong to a team. It plays an important resource role that affects the sense of benefit from knowledge sharing (Nahapiet&Sumantra, 1998) through a member's sense of belonging towards an organisation (Aslam et al., 2013).

### **Cognitive Knowledge Sharing**

Cognitive dimension of knowledge sharing refers to resources that allow common interpretations and meanings within an organisation (Chow & Chan, 2008). Employees can tap easily into others' tacit knowledge by accessing these resources (Abou-Zeid, 2007). Common language or vision support a mutual understanding of unified goals and norms of action in social situations. In organisations, shared vision and values enhance cognitive dimension of knowledge sharing (Tsai &Ghoshal, 1998). At the individual level, cognitive knowledge sharing is the result of frequent interactions and sharing the same way of conducting employee affairs which lead the individuals to learn skills and know-hows (Wasko&Faraj, 2005). Shared vision, shared language and shared goals were built by bringing employees together to create the foundation for trust, which plays an important role for cementing organisational relationships and thus enhances capabilities of knowledge sharing (Levin, Cross, Abrams & Lesser, 2002). Thus, along with the network of relationships, the key elements of this dimension are: (i) shared language, which aids individuals in understanding one another better. It encourages employees to enjoy in knowledge sharing activities and improves the quality of shared knowledge in the organization (Chiu et al., 2006). (ii) shared vision, which includes common goals and aspirations of organisational members. Common understanding enhances resource sharing while minimising misunderstandings (Aslam et al., 2013). The common goals aid the members in perceiving and enjoying these benefits (Aslam et al., 2013).

## II. Research Methodology

This study adopted a survey research design. The target population of this study consisted of all the twelve (12) publicly funded research institutes in Kenya whose core mandate is to conduct policy research. The study targeted the Human Resource departments heads, knowledge management managers and researchers who had been in their institutions for two or more years to give information needed for the study. Table 1 indicates a summary of the target population.

**Table 1 Target Population**

Cluster	Research Institutes	Population
Medical-Biological Sciences Research	2	2679
Agriculture and Natural Resource Management	6	2942
Social, economic and industrial sciences Research	4	1178
<b>Total</b>	<b>12</b>	<b>6799</b>

To determine the sample size, stratified random sampling technique was adopted. This is where the respondents were stratified based on the type of research institutes. A formula recommended by Kothari (2006), Cooper and Schindler (2006) and Zikmund *et al.* (2010) was used to determine the sample size of 135.

$$n = \frac{z^2 pq}{d^2}$$

Where :

n = the desired sample size for target population greater than 10,000 ; p = the proportion in the target population estimated to have characteristics being measured. This is placed at 90% (0.9) ; q = (1-p) that is, the proportion in the target population estimated not to have characteristics being measured, (1-0.9) = 0.1 ; pq = measure of sample dispersion ; d = standard error of the proportion. For this study, it is placed at 0.05 ; z = 1.96 that is 95% confidence level for estimating the interval within which to expect population proportion. To collect data, structured questionnaires were adopted. The data collected was analyzed through both descriptive statistics (mean scores and standard deviation) and inferential statistics (Correlation and Regression Analysis). The following univariate regression model was used in determination of coefficients of the predictor variable in relation to the dependent variable.

$$Y = \beta_0 + \beta_1 X_1 + \varepsilon$$

Where: Y = Organizational Performance ; X<sub>1</sub> = Knowledge Sharing ; ε = Error term

In the model, β<sub>0</sub> = the constant term while the coefficient β<sub>i</sub> = 1...4 was used to measure the sensitivity of the dependent variable (Y) to unit change in the predictor variable while ε is the error term which captures the unexplained variations in the model. Results were presented in form of tables, charts and figures.

## III. Research Findings And Discussion

The researcher administered a total of 135 questionnaires to respondents from Research institutes focusing on medical-biological sciences research, Research institutes focusing on particular crops and natural resources and Research institutes focusing on research in the social, economic and industrial sciences. Out of the number, a total of 102 (76%) were correctly responded to and returned. This response rate was adequate since according to Babin (2010), a response rate of 50% is acceptable for analyzing and publishing while 60% is good and above 70% is considered very good. This is also consistent with the argument by Williams (2011) who argued that higher responses above 50% are suitable for survey studies. The high response rate is attributed to the data collection procedures that were used in the study. The procedures included use of competent research assistants, pre-notification of respondents and voluntary participation by respondents; drop and pick of questionnaires to allow for ample time to fill; assurance of confidentiality and anonymity and follow up calls to clarify queries from the respondents.

### Respondent's Demographic Characteristics

This section contains study findings on demographic characteristics comprising of organization category, respondent's level in the organization and work experience. According to Smith (2015), establishing the demographic characteristics of the respondents does not affect the relationship between the variables of the study. It however describes the population under investigation. The results presented in Table 2 indicates that 46% of the respondents came from research institutes focusing on medical-biological sciences research, 42% came from research institutes focusing on particular crops and natural resources while 12% came from research

institutes focusing on research in the social, economic and industrial sciences. This demonstrates diversity and less sampling bias. It was also indicated that the respondents came from varied employment levels ranging from senior management (26%), mid (28%), lower (12%) and majority (34%) were not in management positions. In regard to work experience, the results showed that majority of the respondents, 25%, had a work experience between 16 and 25 years, 30% had a work experience between 11 and 15 years and 41% had a work experience above 16 years. This implies high institutional knowhow in regard to knowledge retention strategies. The respondents had been in the organizations long enough to give information being sort hence high reliability.

**Table 2 Demographic Characteristics**

Demographic Factor	Category	Percentage
<b>Organization Type</b>	Research institutes focusing on medical-biological sciences research	42%
	Research institutes focusing on particular crops and natural resources	46%
	Research institutes focusing on research in the social, economic and industrial sciences	12%
<b>Level of Employment</b>	Non-management	34%
	Lower management	12%
	Mid-management	28%
	Senior management	26%
<b>Work Experience</b>	3-5 years	14%
	6-10 years	15%
	11-15 years	30%
	16-20 years	25%
	21 years or more	16%

**Descriptive Findings of Knowledge Sharing**

The respondents rated various knowledge sharing approaches in their organizations as shown in Table 3 on a scale of 1 to 5. The respondents agreed that they maintain close social relationships with some members in my research social network (M = 4.04 ; SD = 1.33), spend a lot of time interacting with some members of my social research network (M = 3.95 ; SD = 1.36), have frequent communication with some members of my social research network (M = 4.02 ; SD = 1.39), members of their research social network are truthful in sharing knowledge (M = 3.63 ; SD = 1.41) as well as wont not take advantage of others even when the opportunities arise (M = 3.58 ; SD = 1.44). The respondents also agreed that they have the feeling of togetherness in their research social network (M = 3.53 ; SD = 1.52), have positive feeling towards their research social network (M = 3.57 ; SD = 1.41), feel a sense of belonging towards their research social network (M = 3.58 ; SD = 1.42) and also believe that members in their research social network will help them iif they are in need (M = 3.89 ; SD = 0.89).

It was further indicated that the respondents felt that they know that other members in their research social network will help them, so it is only fair to help others (M = 4.54 ; SD = 0.50), use common terms and language when sharing their knowledge with others (M = 4.52 ; SD = 0.50), use understandable communication patterns during discussions (M = 4.57 ; SD = 0.50), share organisational mission with others (M = 4.53 ; SD = 0.50) as well as share the same vision and goal with others (M = 3.63 ; SD = 0.92). It was generally accepted that knowledge sharing was highly practised among research publicly funded (M = 3.97 ; SD = 1.08).

**Table 3 Descriptive Findings of Knowledge Sharing**

Statement	Mean	Standard Deviation
I maintain close social relationships with some members in my research social network.	4.04	1.33
I spend a lot of time interacting with some members of my social research network.	3.95	1.36
I have frequent communication with some members of my social research network.	4.02	1.39
Members of my research social network are truthful in sharing knowledge.	3.63	1.41
Members in my research social network will not take advantage of others even when the opportunities arise.	3.58	1.44
I have the feeling of togetherness in my research social network.	3.53	1.52

Statement	Mean	Standard Deviation
I have positive feeling towards my research social network.	3.57	1.41
I feel a sense of belonging towards my research social network.	3.58	1.42
I believe that members in my research social network will help me if I am in need.	3.89	0.89
I know that other members in my research social network will help me, so it is only fair to help others.	4.54	0.50
Members in my research social network use common terms and language when sharing their knowledge with others.	4.52	0.50
Members in my research social network use understandable communication patterns during discussions.	4.57	0.50
Members in my research social network share organisational mission with others.	4.53	0.50
Members in my research social network share the same vision and goal with others.	3.63	0.92
<b>Average</b>	<b>3.97</b>	<b>1.08</b>

### Organizational Performance

The organizational performance of the publicly funded research firms in terms of customer satisfaction index and employee satisfaction index (out of 10) was established through document analysis guide. The results in Table 4 indicate that on a scale of 1 to 10, the research organizations average an index of 7.20 in the year 2013, 7.31 in the year 2014, 7.35 in the year 2015 and 2016, 7.18 in the year 2017 and 7.67 in the year 2018. These values are above 70% to imply a good ranking from the customers.

**Table 4 Descriptive Findings of Customer Satisfaction Index**

	N	Minimum	Maximum	Mean	Std. Deviation
Customer Survey Index 2013	102	2	10	7.20	2.718
Customer Survey Index 2014	102	2	10	7.31	2.692
Customer Survey Index 2015	102	2	10	7.35	2.628
Customer Survey Index 2016	102	2	10	7.35	2.76
Customer Survey Index 2017	102	2	10	7.18	2.719
Customer Survey Index 2018	102	2	10	7.67	2.503

The employee satisfaction index was also established and presented in Table 5. The results in Table 4.11 indicate that on a scale of 1 to 10, the research organizations average an index of 8.18 in the year 2013, 7.82 in the year 2014, 8.08 in the year 2015, 8.20 in the year 2016, 7.65 in the year 2017 and 8.12 in the year 2018. These values are above 70% to imply a good ranking from the employees.

**Table 5 Descriptive Findings of Employee Satisfaction Index**

Year	N	Minimum	Maximum	Mean	Std. Deviation
Employee Satisfaction Index 2013	102	2	10	8.18	2.642
Employee Satisfaction Index 2014	102	2	10	7.82	2.55
Employee Satisfaction Index 2015	102	2	10	8.08	2.698
Employee Satisfaction Index 2016	102	2	10	8.20	2.736
Employee Satisfaction Index 2017	102	2	10	7.65	2.586
Employee Satisfaction Index 2018	102	2	10	8.12	2.667

### Correlation Analysis

The study used correlation analysis to establish the relationship between the variables under investigation. The results as shown in Table 6 indicate that knowledge sharing is positively and significantly associated with organizational performance ( $r = .922$ ,  $\text{Sig} < 0.05$ ). This implies that an increase in knowledge sharing practices is associated with a significant improvement in organizational performance of publicly funded

research organizations in Kenya. Johansson et al. (2013) also established that Volvo has improved its performance significantly through its knowledge-sharing technology between projects within the organization.

**Table 6 Correlation Matrix**

		<b>(X1)</b>	<b>Y</b>
Knowledge Transfer (X1)	Pearson Correlation	1	
	Sig. (2-tailed)	0.000	
Organizational Performance (Y)	Pearson Correlation	.922**	1
	Sig. (2-tailed)	0.000	
	N	102	102

\*\* Correlation is significant at the 0.01 level (2-tailed).

**Regression Analysis**

A univariate regression model was established to determine the relationship between the two variables. The regression results presented in Table 7 indicate that knowledge sharing explains up to 84.9% of the variation in performance of publicly funded research institutions in Kenya (R-square = 0.849). It was also established that the regression model linking knowledge sharing to performance was a good fit (Sig < 0.05). The results further detailed that knowledge sharing has a positive and significant influence on performance of publicly funded research institutions in Kenya ( $\beta = 3.301$ , P-value < 0.05). This implies that a unit increase in knowledge sharing practices leads to an improvement in publicly funded research institutions in Kenya by 3.301 units. The findings are consistent with that of Johansson et al. (2013) who established that Volvo has improved its performance significantly through its knowledge-sharing technology between projects within the organization.

**Table 7 Regression Analysis of Knowledge Sharing and Performance**

<b>Model Summary</b>					
<b>R</b>	<b>R Square</b>	<b>Adjusted R Square</b>	<b>Std. Error of the Estimate</b>		
.922	0.849	0.848	0.92		
<b>ANOVA</b>					
	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
Regression	477.27	1	477.27	563.857	.000
Residual	84.644	100	0.846		
Total	561.914	101			
<b>Coefficients</b>					
	<b>Unstandardized Coefficients</b>		<b>Standardized Coefficients</b>		
	<b>B</b>	<b>Std. Error</b>	<b>Beta</b>	<b>t</b>	<b>Sig.</b>
(Constant)	-5.434	0.56		-9.713	0.000
Knowledge Sharing	3.301	0.139	0.922	23.746	0.000
<b>Dependent Variable: Performance</b>					
<b>Predictors: (Constant), Knowledge_Sharing</b>					

**IV. Conclusions**

The study conclude that knowledge sharing has a positive significant influence organizational performance of publicly funded research institutions in Kenya and this is determined by structural dimension, relational dimension and cognitive knowledge sharing. In influencing performance of publicly funded research institutions in Kenya, structural dimension demands for; maintaining close social relationships with some members in their research social network, spending a lot of time interacting with some members in their research social network, and having frequent communication with them.

## V. Recommendations

Firstly, the policy makers of publicly funded research institutions in Kenya design and develop knowledge sharing policies and also transform into resource centers that can generate knowledge. These policies should focus on providing atmosphere for employee to maintain cordial close social relationships within their groups and also promote research social network. There should be freedom of interaction among employee. There should opportunity for employee to form sincere network through motivations and provision of satisfiers. There should sessions of discussions groups. Importantly, the institutions should clearly explain to the employees their mission and vision as well as goals and practice this.

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