

RESEARCH PAPER

# Improving Task Performance through Virtual Team Communication

Zainal Arifin<sup>1</sup>, Meldasari Said<sup>2</sup> & Laila Refiana Said\*<sup>3</sup>

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## ABSTRACT

Numerous studies have examined the increasing number of virtual team communication usage, especially during the Covid-19 pandemic. However, little research has been conducted on the factors affecting its effectiveness in improving task performance, seeing the virtual team's rapid development today. Therefore, this study examines the effect of direct and indirect employee preference and organizational support on task performance through virtual teamwork communication. The research method used was a survey of 156 employees in the fields of education, telecommunications, transportation, and health in Banjarmasin city, who work from home, interact with colleagues who also work from home, and with colleagues who work in the office. The analysis was carried out using path analysis. The results showed that employee preference and organizational support directly affected task performance. Virtual team communication can mediate the influence of employee preference and organizational support on task performance. The research implies that virtual team communication that runs well can improve work performance. Therefore, it requires collaborative support, both from individuals and the organization. The main contribution of the current research is by presenting factors that can directly impact virtual team communication and task performance. The findings can be a foundation for future study lines on deploying virtual work practices in post-pandemic work.

**KEYWORDS:** Employee preference; Organizational support; Virtual team communication; Task performance.

## 1. Introduction

The Covid-19 pandemic has forced almost all countries to implement lockdowns. Indonesia was no exception, but this country preferred to implement Large-Scale Social Restrictions (LSSR) during the pandemic, where there were arrangements to close all schools and implement a 50% office occupancy policy to prevent massive transmission of Covid-19. Many people had started to work from home. However, many still did not want or doubt the effectiveness of working virtually.

The virtual team utilizing advances in information technology has long been used as a communication alternative model for more

efficient teamwork in business. A virtual team is remote work done in part or in full by the main company with the help of telecommunications services [26]. Virtual teams exist when multiple remote workers are combined, and each member reports to the same manager. In addition, virtual teams exist when group members interact virtually to achieve a common goal [29].

The development of virtual teams is also triggered due to the rapid development of the global economy, which, among others, was born from the cooperation of geographically separated individuals far apart. These virtual teams are becoming increasingly important in a business organization to improve the efficiency of a company's work [21]. Virtual teams allow companies to obtain an expert workforce without any longer being constrained by physical existence and geographical location. Companies can hire an expert workforce from different parts of the world without requiring additional costs for relocation.

\* Corresponding author: Laila Refiana Said  
[lrsaid@ulm.ac.id](mailto:lrsaid@ulm.ac.id)

1. Sekolah Tinggi Ilmu Ekonomi Indonesia Banjarmasin, Indonesia.
2. Sekolah Tinggi Ilmu Ekonomi Indonesia Banjarmasin, Indonesia.
3. Faculty of Economics and Business, Lambung Mangkurat University, Banjarmasin, Indonesia.

Virtual teams also have efficiency in terms of time, where a job can be done anytime and anywhere. They reduce workplace costs and increase productivity as a new way of improving customer service, better access to global markets, and a favorable environment [15]. The growth of virtual teams from year to year has significant increase due to an increasing percentage of online workers working in their homes. The data stated that the percentage of home workers growth from 1980-2009 was 86.6% [36]. It is estimated that at least 20-30 million people work online weekly.

It is interesting to study it in more depth to understand the virtual team during the Covid-19 pandemic and the factors that affect its effectiveness seeing the rapid development of the virtual team today. This virtual team has differences from traditional teams, so there will be several differences that need to be considered in managing virtual teams, where this is a new challenge for human resource management.

Virtual teams also pose separate challenges for organizations [41], including the distance between team members for project management and the challenge for virtual team members who need more training to maximize performance and utilization of ICT. Employee mobility also affects the performance of virtual teams. Their whereabouts are difficult to track, especially regarding requests for accountability. Another challenge is determining the appropriate tasks for each virtual team member related to the compatibility of the technology they are good at. Various ideas of the virtual team model are conveyed in many works of literature, but most are still conceptual [12]. Virtual teams have differences from traditional teams (face-to-face teams). Face-to-face team members have a strong level of accuracy in assessing personality among team members who work closely in an office. Virtual team members have a much lower level of accuracy in assessing the personality of their colleagues [6]. Thus, virtual team environments present different interpretive contexts for understanding team member behavior. Instead of relying on physical cues, team members in a virtual context should rely on computer-mediated (i.e., digital or text-based) cues when attributing to their teammates.

The current study was conducted in the province of South Kalimantan, Indonesia, which has 4.12 million people [24]. In August 2021, the percentage of full-time workers decreased by around 1.34 percent compared to August 2020 [24]. In contrast, part-time workers increased by about 1.34 percent. It is likely because more

companies implement work-from-home policies and work virtually.

On the other hand, people's perception of digital literacy is only in the initial cognitive aspect with a moderate category assessment [43]. It means that the people's perception was still at the level of knowing the internet as an information medium, not yet reaching the implementation or use of a high level of internet. The study, which was held in the provincial capital of South Kalimantan, showed low digital literacy.

There are several differences to note in virtual team management that become new challenges for human resource management. Thus, the rapid development of virtual teams today is interesting to be studied more deeply to understand the factors that affect their effectiveness. However, no studies were found on virtual communication activities among South Kalimantan people. It is also essential to examine whether the performance task is related to employees' preferences in the province of South Kalimantan, judging from their virtual communication behavior.

## 2. Literature Review

Virtual teams involve geographically distributed collaborations and rely on technology to communicate and cooperate among team members [33]. In contrast to the traditional notion of a team based on stable membership and clear boundaries, virtual teams can span multiple contexts, including several different cultures and geographies, perhaps even covering very complex goals, ages, and memberships [8].

Virtual teams encounter five challenges: geographical distance, temporal distance, perceived distance, the configuration of dispersed teams, and worker variety [33]. On the other hand, another study shows that virtual teams' effectiveness is determined by three factors: people, technology, and process [41]. The people factor concerns leadership and trust in them and team members, while the technology concerns communication planning and media selection (ICT). Furthermore, the process factor is related to skills and training.

The focus of virtual team meetings is the communication process. Many articles discussing the importance of communication focus on creating excellent teams of communicators, selecting the right technology for the most effective communication, and the communication difficulties posed by virtual environments [23]. The sophistication of technology that organizations prepare for meetings in virtual communication does not guarantee the

effectiveness of group communication. Indicators of the success of virtual team communication can be seen from the number of communication (frequency), the use of information technology (IT), and clear communication feedback for communicators and communicants [32].

The effectiveness of virtual team communication is also determined by the leadership skill to manage group dynamics. The ability of virtual team leaders is tested when managing group communication-related differences from members' cultural backgrounds to time zone differences which can result in differences in the effectiveness of team members in virtual meetings [28].

Communication is created from the involvement of employees (employee engagement) who have a high spirit and loyalty to communicate to contribute actively [45]. Employees who immerse themselves in teamwork tend to communicate actively in their groups [14]. For virtual team communication to run smoothly, support is needed, such as encouragement to open communication and share information from top to bottom [14]. If team members feel they can share their understanding of which information communication technology (ICT) to use for specific tasks, they can work in a more coordinated and better way [35].

Trust among team members, the leader's competence, and interdependent tasks also significantly affect the efficiency of virtual team tasks [7]. When team members believe that their leader uses a combination of communication tools and techniques to be effective, these virtual team members also perceive their team as having a higher level of performance [37]. A study stated that virtual leadership contributed positively to intra-team communication, while intra-team communication positively contributed to job performance [22].

Furthermore, planned work will make it clear for members to coordinate and communicate with each other [2]. The most important thing in creating a comfortable communication climate between virtual team members is how the leader communicates the goals of the work team in the early phase [17].

Olson & Olson's (2012) research describes an interesting thing: group communication mediated by computers creates more trust between members than face-to-face communication directly. Furthermore, mutual trust between team members and easy-to-use media significantly affects virtual teamwork satisfaction [7].

[12] stated that employees who feel that their job satisfaction is fulfilled have a desire to

communicate better than those who are less fulfilled, including when they find organizational support in the form of equipment facilities that make work easier [2] in this case technology support for virtual communication activities.

The sudden change from traditional working (working in an office) to becoming a virtual team (working at home) may confuse some fewer literate employees in digital technology. Organizations should prepare training in the use of ICT so that employees can optimally complete their tasks in their respective homes [42]. The organization supports the creation of virtual teams, such as leadership support that encourages IT to use collaboration, mental sharing, trust, and the ability to manage conflict [16].

Technology is seen as a shared space between virtual team members. Technology mediates audio and visual meetings and connects virtual team members to share knowledge and affection [27]. The interpersonal relationship attribute is associated with personal competence measured in skills and efficacy, which contributes substantially to the interactivity of team conversations, including openness and satisfaction of each virtual team member [44].

The work-at-the-home policy cannot be separated from employee preference. Employee preference is a matter of consideration for the choice of actions that employees must have, either voluntarily or because of the intervention of their affiliated organizations. In this study, employee preference indicators include engagement in the form of work, mental strength, emotional involvement, and work concentration [31], knowledge, skills, and ability [10] using information technology, and working together as a team [25]. This variable is included because, based on the research of [8], interpersonal needs cannot be separated from working relationships in virtual teams.

Virtual teamwork's effectiveness will impact knowledge sharing and good work coordination [15]. Employees' background influences job performance and organizational support, such as leadership, compensation, rewards, and provision of facilities [10]. Flexibility in the use of ICT appears to affect the relationship between individual perceptions of the use of ICT for knowledge sharing and team coordination, which could be an indicator for interventions supporting the use of IT knowledge-sharing ability (IT KSA) [35].

Previous research shows that virtual team performance supports organizational performance [1]. Specifically, the current study seeks to analyze the positive effect of employee

preference, organizational support, and virtual team communication on task performance.

Literature review shows that the earliest articles on task performance date back to the 1960s [30]. Task performance is the efficiency with which individuals performing a task contribute to the technical core of the organization, either directly by implementing a portion of its technological process or indirectly by providing it with goods or services that it requires [5], [34]. Task performance refers to the core technical behavior and production behavior involved in a job to

achieve organizational goals [4], [18]. There is a correlation between task proficiency and knowledge, skills, and capacities, all of which are crucial traits for successfully carrying out task behaviors [4], [46] shows that improving task performance requires an understanding of the diversity of employee skills, clarity of duties and significance of duties contained in the job description and Standard Operating Procedure (SOP).

Based on the arguments above, the following research framework was made as follows:

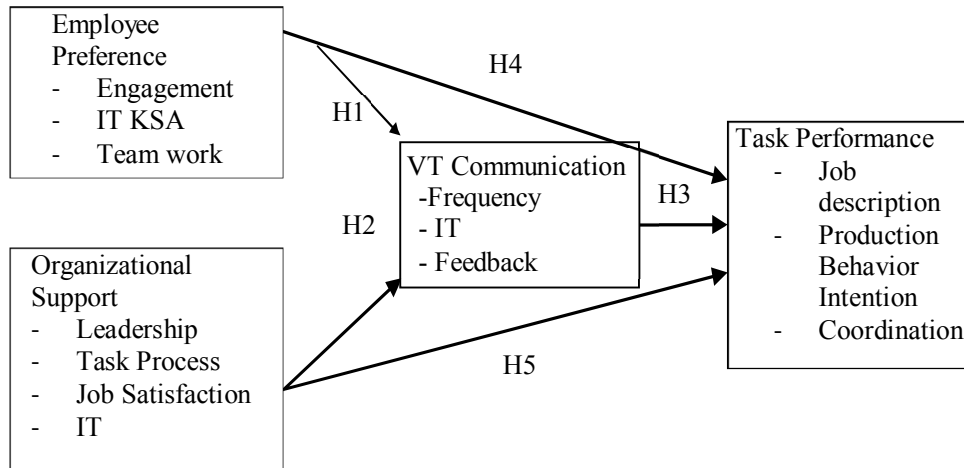


Fig. 1. Research framework

### 3. Method

#### 3.1. Participants and procedure

The research method was a survey of 156 employees working in the fields of education, telecommunications, transportation, and health in Banjarmasin city, South Kalimantan, Indonesia. All questions were evaluated using a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The reliability was above the acceptable level with Cronbach's Alpha value of more than 0.70. Respondents were those who work from home as a team, both at home and with colleagues in the office. The analysis was performed using path analysis to test research hypotheses. Path analysis entails multiple regression analyses to develop a model of the connections between predictor variables and the criterion [47]. Calculating the direct and indirect impacts of the predictor variables on the criterion

clarifies the nature of the relationships between the predictor variables and the criterion.

Sampling was carried out randomly among employees in each field. The sample showed 54.49% were women, 45.51% were men, 3.21% were under 25, 50.64% were between 25-35, 30.78% were between 36 - 45, and 15.37% were between 46-55. There were 60.26% with associate degrees, 37.18% with bachelor's degrees, and 2.56% with postgraduate degrees.

### 4. Results

The results of the path analysis carried out using a regression test are intended to determine the effect of the independent variable on the dependent variable. The results of the path analysis of the regression equation 1 are as shown in Table 1:

#### Model Summary

Tab. 1. Results of path analysis of the regression equation 1

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.880 <sup>a</sup>	.774	.768	2.190

Predictors: (Constant), Employee Preferences, Organizational Support

The results of the effect of Employee Preference and Organizational Support on Virtual Team

(VT) Communication can be described in Figure 2:

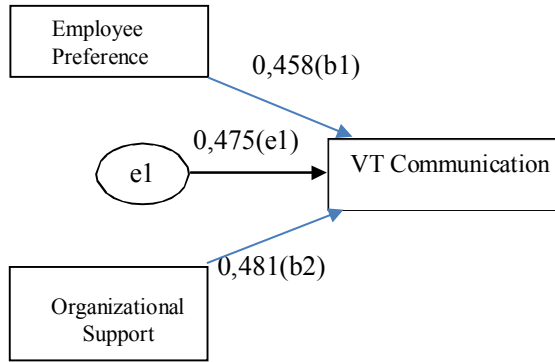


Fig. 2. Line of regression equations 1

The calculations in Table 1 and Figure 2 can be formulated as follows:  
 $Y1 = 0.458 X1 + 0.481 X2 + 0.475$

From the results of data processing, the results of the second regression equation by path analysis were as follows in Table 2:

Tab. 2. Results of path analysis of the regression equation 2

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.925 <sup>a</sup>	.855	.850	1.819

Predictors: (Constant), VT Communication, Employee Preference, Organizational Support

The analysis results of the effect of Employee Preference and Organizational Support on Virtual

Team (VT) Communication are illustrated in Figure 3:

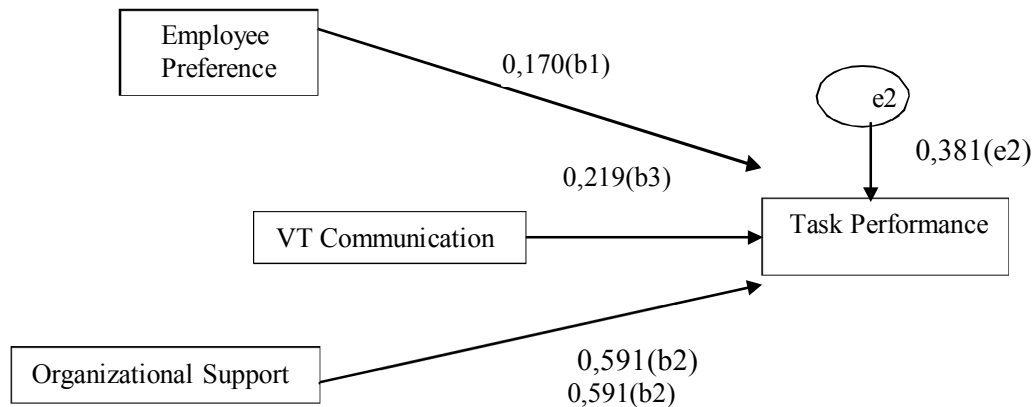


Fig. 3. Line of regression equations 2

The effects of Employee Preference, Organizational Support, and Virtual Team (VT)

Communication on Task Performance can be described as follows (Figure 4):

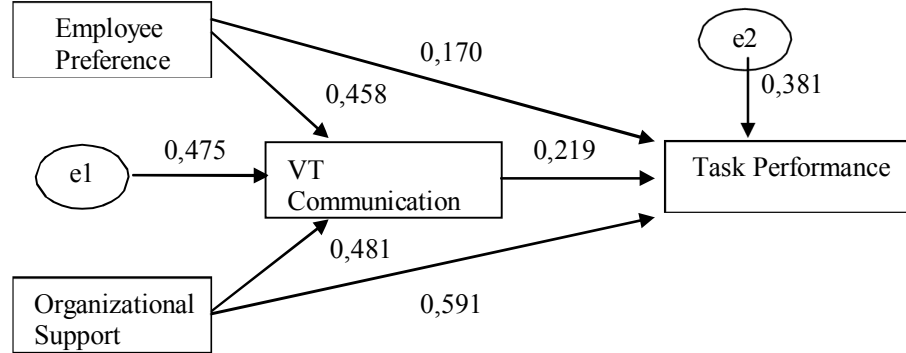


Fig. 4. Path analysis result

Based on the results of the path analysis, the indirect effect of Employee Preference and Organizational Support on Task Performance through Virtual Team (VT) Communication as an intervening variable is as follows:

#### 4.1. The effect of employee preference on task performance is through virtual team (VT) Communication:

- 1) The direct effect of Employee Preference on Task Performance was 0.170. The effect of Virtual Team (VT) Communication on Task Performance was 0.219. Therefore, the increased effect of Employee Preference indirectly on Task Performance through Virtual Team (VT) Communication was:  $0.458 \times 0.219 = 0.100$  or 10.03%.
- 2) The total direct and indirect effects of Employee Preference on Task Performance were:  $0.170 + 0.100 = 0.270$  or 27.00%.

#### 4.2. The effect of organizational support on task performances through teamwork communication

- 1) The direct effect of Organizational Support on Task Performance was 0.591. The direct effect of Virtual Team (VT) Communication on Task Performance was 0.219. The indirect effect of Organizational Support on Task Performance through Virtual Team (VT) Communication was:  $0.481 \times 0.219 = 0.105$  or 10.50%.
- 2) The total effect of Organizational Support (both directly and indirectly) on Task Performance was:  $0.591 + 0.105 = 0.696$  or 69.60%.

### 5. Hypotheses Test

#### 5.1. Effect of employee preference on virtual team communication

As shown in Table 3, the significant value of Employee Preference on Virtual Team Communication is  $0.000 < p = 0.05$  and  $t\text{-test} = 5.450 > t\text{-table} = 1.665$ ; therefore, hypothesis 1 (H1) states that Employee Preference has a positive effect on the Virtual Team Communication is accepted. This positive direction indicates that Virtual Team Communication will increase if Employee Preference is increased.

Tab. 3. The effect of employee preference and organizational support on virtual team communication

Model	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
	B	Std. Error	Beta			
1	(Constant)	1.539	1.032		1.491	.140
	Employee Preference	.545	.100	.458	5.450	.000
	Organizational Support	.595	.104	.481	5.721	.000

Dependent Variable: VT Communication

### 5.2. Effect of organizational support on virtual team communication

Based on Table 4, the significant number of Organizational Support on Virtual Team Communication is  $0.000 < p=0.05$  and  $t\text{-test} = 5.721 > t\text{-table} = 1.665$ ; therefore, hypothesis 2 (H2) states that Organizational Support is a positive and significant effect on Virtual Team Communication is accepted. This positive direction indicates that Virtual Team Communication will increase if Organizational Support increases.

### 5.3. Effect of virtual team communication on task performance

Table 4 shows that the significant number of Virtual Team Communication on Task Performance is  $0.021 < p= 0.05$  and  $t\text{-test} = 2.357 > t\text{-table} = 1.665$ . Therefore hypothesis 3 (H3), states that Virtual Team Communication has a positive effect on Task Performance, is accepted. This positive direction indicates that Task Performance will increase if Virtual Team Communication improves.

**Tab. 4. The effect of virtual team communication on task performance**

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
1 (Constant)	.229	.870		.263	.793
Employee Preference	.209	.098	.170	2.131	.036
Organizational Support	.755	.104	.591	7.289	.000
VT Communication	.226	.096	.219	2.357	.021

Dependent Variable: Task Performance

### 5.4. Effect of employee preference on task performance

H4 states that Employee Preference positively and significantly affect Task Performance ( $0.036 < p=0.05$  and  $t\text{-test} = 2.131 > t\text{-table} = 1.665$ ) as shown in Table 5. This positive direction indicates that Task Performance will increase if Employee Preference increase.

### 5.5. Effect of organizational support on task performance

Based on Table 5, the significant number of Organizational Support on Task Performance is  $0.000 < p=0.05$  and  $t\text{-test} = 7.289 > t\text{-table} = 1.665$ ; therefore, hypothesis 5 (H5) states that Organizational Support has a positive and significant effect on Task Performance is accepted. This positive direction indicates that Task Performance will increase if Organizational Support increases.

## 6. Discussion

The main contribution of the current research is to illustrate factors that can directly impact virtual team communication and task performance. 'Employee preference' and 'organizational support' were the primary determinants of virtual team communication and task performance.

The findings show that employee preference plays an important role in supporting and

encouraging virtual team communication practices. This result is supported by Teresko (2004), who states that communication is created from employee engagement with a high spirit and loyalty to communicate to contribute to his thinking actively. Furthermore, mastery of knowledge encourages people to behave [39], where in this case, workers can communicate knowledgeably and have mastered the use of information technology. Employees who immerse themselves in teamwork also tend to communicate actively in their groups [14].

Both individual tasks and teamwork may contribute to task performance. Through virtual communication, team members led by the team leader can share and collaborate on the sub-goals of the organization. Thus, the expected performance can be achieved if the virtual team communication is optimized. This result is in line with research by [22], [3], and Salman and [20]. Task performance is part of employee performance, while motivation is part of employee engagement. [2] showed that employee preference affects employee engagement. [19] reveals that passion for work makes employees appreciate work and pay close attention to job details, especially if the employee understands information technology, motivation, and clarity of tasks.

Employee performance is influenced by the environment, organization, and individual employees [10]. Task performance, part of

employee performance, is also influenced by organizational conditions, such as leadership that controls and directs the achievement of organizational goals and job satisfaction through employee performance and task performance. In addition, it is supported by the clarity of work, both in operational standards for completing work and by the availability of equipment to speed up work. It has also been supported by research by [40], [9].

The role of virtual communication in bridging employee preference for task performance improvement plays a role when employees utilize their motivation to achieve goals. Work is optimized when communication and collaboration with other employees go smooth.

The work planned by the leadership or with members needs to be realized through cooperation between employees even though they are in different places. By utilizing the technology provided by the organization, this collaboration can be bridged. If members contact a high frequency of communication, then work and cooperation become clearer and faster. Communication feedback also needs to be controlled to ensure whether the commands conveyed are understood or not so that the work can run smoothly. It supports the research results of [11], [13].

For the virtual team to work effectively, the role of management becomes very important in managing employee preferences, especially related to employee motivation. In this case, employee motivation is that employees are willing and able to utilize technology related to effective virtual team communication. Organizations' leaders determine the working group's direction to achieve the best task performance. Management must also support task performance by providing adequate ICT facilities, such as hardware for each employee who works at home, an internet connection, and software that supports virtual team communication and coordination, facilitating and smoothing work team communication. In addition, employee IT skills development must also be considered so that employees with fewer IT skills can be matched in their competence in operating ICT and contribute optimally to virtual teamwork.

The Covid-19 pandemic teaches people that although mobility is limited, the existence of adequate information and communication technology can eliminate these restrictions. Employees can still interact, communicate, coordinate and work together to achieve common goals, even virtually. Presume this trend is still

ongoing, and a positive impact is felt on efficiency, the implication might be on such policies of minimizing office space, tightening rules and performance management, and changes in employee recruitment and selection policies because people with the right competencies can be recruited from any region without geographical boundaries.

## 7. Conclusion

This study examined the direct and indirect effects of employee preference and organizational support through virtual teamwork communication on task performance. The result shows that employee preference and organizational support positively predict task performance. By analyzing the indirect effect, results reveal that virtual teamwork communication significantly mediates the relationships between independent variables of employee preference and organizational support and task performance. The findings can be a foundation for future study lines on deploying virtual work practices in post-pandemic work.

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