



## **The effect of using the Microsoft Teams application on the collaboration skills of certified independent learning/project students at PT Maribelajar Indonesia Cerdas**

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### **Abstract**

*The Industrial Revolution 4.0 makes learning more accessible, such as using technology. The technology used in learning can improve students' skills. Skills are essential for every student to improve the quality of learning in the 21st century. The quality of learning in the 21st century can be enhanced through the Freedom to Learn - Independent Campus (MBKM) program, which provides space for students in Indonesia to develop the 5C skills, namely creativity, critical thinking, communication, collaboration, and celebration. One of the MBKM programs you can participate in is the Certified Independent Study/Project Internship Program (MSIB) with partner PT MariBelajar Indonesia Smart in collaboration with Microsoft. The MSIB Program uses Microsoft Teams to help students collaborate to solve problems through capstone projects. The research method uses quantitative methods and aims to analyze the effect of Microsoft Teams on the collaboration abilities of PT Independent Study/Project students. Let's Learn Smart Indonesia. The research subjects were PT Independent Study/Project students. MariBelajar Indonesia Smart Cycle 2. The instrument used to measure the use of Microsoft Teams and collaboration skills is through a questionnaire with a Likert scale. The data analysis technique used is simple linear regression using the SPSS 23.0 for Windows program. The analysis results show that using Microsoft Teams affects students' collaboration abilities, which can improve their skills and help them complete projects. Using Microsoft Teams helps students utilize collaboration spaces to understand Microsoft Teams' features to enhance their communication skills and creativity. Future researchers should test other factors such as communication skills, creativity, and critical thinking skills using Microsoft Teams. Students can explore Microsoft Teams features to complete other course assignments.*

**Keywords:** *microsoft teams; collaboration skill; independent study/project.*

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## **INTRODUCTION**

The Industrial Revolution 4.0 brought rapid changes in various fields of development related to technology. Technological developments like the Internet of Things and big data have helped make work easier with technological machines. There will be many benefits if all levels of society can utilize this technology well. One example of the benefits is that educators and students can learn freely and freely without the limitations of space and time. Examples of the use of technology for educators and students are learning media, managing administrative data, and learning resources (Lestari, 2018).

Through technology, educators and students can easily access various learning resources, and learning is not limited to the classroom. The interaction patterns applied during the learning process do not have to be face-to-face, but by utilizing technology, educators can facilitate students' knowledge (Khotimah et al., 2019). Therefore, every student can access information freely in the learning process to develop thinking skills. Learning that utilizes technology can provide new experiences and improve Human Resources (HR) skills to be of higher quality (Ismail et al., 2020).

One way that can be a benchmark for assessing the quality of Human Resources (HR) is through the skills they possess (Siahaan, 2016). The skills referred to in this are creativity, critical thinking, communication, collaboration, and celebration (5C). According to Febriana and Pujiastuti (2022), with these 5C skills, HR can certainly answer challenges when faced with a new life. Currently, we face real-life challenges in solving problems and have skills and creative ideas (Indraswati et al., 2020). For this reason, every individual must have these 21st-century skills and continuously hone them through various activities.

One activity that can hone knowledge and form superior character with skills is Freedom to Learn-Independent Campus (MBKM). The program is designed to optimize meaningful learning by involving technology. The Independent Learning program, if implemented optimally, can produce quality students who can analyze and develop themselves (Saleh, 2020). Independent Learning - Independent Campus (MBKM) has a policy that can provide other innovations for the national education system (Sherly et al., 2020). The Independent Learning-Independent Campus (MBKM) program also encourages students to gain experience in studying outside campus through various additional competencies (Meke et al., 2022).

The various programs at Independent Learning-Independent Campus (MBKM) can facilitate students at all universities according to their talents and interests. The Independent Learning - Independent Campus (MBKM) program includes Teaching Assistance in Education Units, Independent Study/ Projects, Thematic KKN, Independent Student Exchange, and so on (Sulistiyan et al., 2021). One program that can build student competency in using technology is Independent Study/ Projects with partners who have collaborated with the Ministry of Education and Culture. This Independent Study/ Project Program helps students develop

products, ideas, and works through an independent project that can be contested locally, nationally, or internationally (Fuadi, 2022).

One of the partners collaborating with the Ministry of Education and Culture in implementing Independent Study Programs/Projects is PT MariBelajar Indonesia Smart. Through Independent Studies/Projects at PT MariBelajar Indonesia Smart in collaboration with Microsoft, we can help students optimize their abilities according to their interests. In this Cycle 2 Independent Study/Project, PT MariBelajar Indonesia Smart offers to prepare students to innovate and meet various needs by utilizing technology in every learning activity. One of the uses of technology in independent studies/projects is Microsoft Teams to carry out every learning activity.

The learning pattern in PT MariBelajar Indonesia Smart's Independent Study/Project encourages participant collaboration. According to (Napfiah, 2019), collaboration skills are essential for students to interact by providing suggestions and ideas in completing assignments, being responsible in the discussion process, and respecting others. This collaboration capability also provides space for students to be creative themselves in creating a meaningful and exciting learning process. This collaboration ability can make work more effective (Rohman, 2013). Moreover, looking at the challenges of the 21st century, every individual must have a social network to develop their knowledge.

Based on research by (Anggelita et al., 2020), it is known that through collaboration skills, you can achieve maximum learning outcomes and impact work being more effective and meaningful. Apart from that, collaborating can improve student achievement and train them to solve problems in the world of work. Through this collaboration, each individual's involvement in working with the group, providing ideas during discussions, respecting other people's opinions, and participating can provide maximum results (Ameliana et al., 2021). Each individual's involvement also requires high levels of adaptability, which can provide high levels of cooperation. This is supported by research (Apriono, 2013) that shows that collaboration skills encourage students to contribute actively to realizing learning goals. Therefore, students find it easier to understand and quicker to solve their problems. The difference between this research and other research is in terms of collaboration ability based on educational level. Previous research focused more on educational levels such as elementary school, middle school/MI, and high school/vocational school and on the influence of learning models. Hence, this research discusses aspects of collaboration abilities in students through the Independent Study/Project MBKM program at PT MariBelajar Indonesia Smart. The research aims to analyze the effect of using Microsoft Teams on the collaboration abilities of PT Certified Independent Study/Project students. Let's Learn Smart Indonesia.

## **METHOD**

This research uses a quantitative approach with explanatory research. An explanatory type to test the hypothesis that a variable has a significant influence or relationship with other

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variables. The research design was conducted using a survey of a representative sample of the student population who participated in the independent study. This research uses two variables, namely the independent variable and the dependent variable. The independent variable (variable X) uses Microsoft Teams, while the dependent variable (variable Y) is collaboration ability. The indicators used in the Microsoft Teams usage variable are the advantages of using the Microsoft Teams application, understanding the material in learning using Microsoft Teams, and ease of accessing the Microsoft Teams platform (Rahayu & Subagyo, 2022). Furthermore, indicators are used for the collaboration ability variable: cooperation, responsibility, and flexibility (Priandini et al., 2022).

Research location at PT. Let's Learn Indonesia Smart, which partners with Independent Studies/Projects, is located in Denpasar City, Bali. The population of this study was 1388 students. However, the researchers only used samples with an error tolerance of 10%. The results of sample calculation using the Slovin formula obtained 93 students who became research respondents. The sampling technique uses simple random sampling.

The data collection technique in this research uses a questionnaire instrument. Before distributing the questionnaire to students, the research instrument was tested for suitability through validity and reliability tests. The instrument used in this research was a closed questionnaire. Closed questionnaires provide answer options with specific conditions for respondents to fill in, such as strongly agree, agree, disagree, and strongly disagree. The answer options for each statement can be measured using a Likert scale. This Likert scale measures individual opinions in a study by providing agreement with the statements provided (Syofian et al., 2015).

Data processing in this research used the SPSS 23.0 for Windows program. Before carrying out data analysis, researchers carried out normality tests and linearity tests. The data analysis technique was carried out using a simple linear regression test. This was done to analyze whether or not Microsoft Teams influenced collaboration capabilities. The research hypothesis is as follows:

$H_0$  : The use of Microsoft Teams does not have a significant effect on students' collaboration abilities

$H_1$  : The use of Microsoft Teams has a significant effect on students' collaboration abilities

## **RESULTS AND DISCUSSION**

### **Results**

#### *Respondent Character*

This research shows that the characteristics of respondents refer to gender and the learning path followed in Independent Studies/Projects at PT. Let's Learn Smart Indonesia. The data related to the characteristics of respondents taking part in the Cycle 2 Independent Study/Project program in 2022 is as follows:

Table 1. Characteristics of respondents based on gender and learning path

<b>Characteristics</b>	<b>Number of Respondents</b>	<b>Percentage</b>
<b>Gender</b>		
Male	27	29%
Female	66	71%
<b>Age</b>		
20 – 22	72	77%
23 – 25	21	23%
<b>Learning Path</b>		
<i>Information Worker</i>	34	36%
<i>Intelligence Cloud</i>	21	23%
<i>Modern Educator</i>	38	41%

Source: Data analysis

Table 1. The characteristics of respondents based on gender show that more female participants participated in the Certified Independent Study/Project program held by PT. Let's Learn Smart Indonesia because the teaching profession is much sought after by women. Apart from that, women tend to prepare themselves more before entering the world of work by participating in training activities. This preparation is carried out to provide skills for facing the world of work (Istifariyati, 2022).

The table above also shows the characteristics of respondents based on the type of learning that is widely followed, namely Modern Educator and then Information Worker. This is related to the Modern Educator learning pathway, which provides facilities for students with educational study program backgrounds. This Modern Educator learning path has material related to 21st Century Learning Design, Student-Centered Learning, Inclusive Classrooms Academies, and so on. Some of these materials equip students to become prospective educators who are innovative and can use technology in every learning activity. So, through this learning path, students can understand 21st-century learning scenarios.

#### *Instrument Test*

Instrument testing is carried out in research to measure an instrument's quality and reliability. The results obtained can be analyzed starting from the validity and reliability tests. Validity tests were conducted on the Microsoft Teams usage variable (X) and the collaboration ability variable (Y).

#### *Validity Test Result*

This validity test is a way to see whether an instrument follows the criteria accurately and validly (Yusup, 2018). The validity results for each variable instrument are as follows:

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Table 2. Validity test of Microsoft Teams application usage variables

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
X1	33.65	19.713	.838	.890
X2	33.75	21.566	.644	.902
X3	33.75	21.461	.480	.912
X4	33.65	21.187	.671	.900
X5	33.60	19.937	.783	.893
X6	33.65	20.029	.779	.894
X7	33.25	21.566	.644	.902
X8	33.50	21.737	.660	.901
X9	33.60	22.463	.513	.908
X10	33.65	21.608	.587	.904
X11	33.95	19.524	.679	.901

Source: Data analysis

Table 3 shows that the instrument test on the Microsoft Teams usage variable (X) is said to be valid because it exceeds the predetermined reference value. The smallest item value in the Microsoft Teams usage variable is 0.480. This also shows that the value of each item is greater than the r table of 0.468, which means it is valid.

Table 3. Validity Test of the Collaboration Ability Variable

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Y1	33.40	16.147	.686	.928
Y2	33.30	15.695	.910	.919
Y3	33.25	16.303	.699	.927
Y4	33.35	15.818	.728	.926
Y5	33.40	15.095	.801	.923
Y6	33.25	15.776	.846	.921
Y7	33.15	16.134	.710	.927
Y8	33.30	15.800	.700	.928
Y9	33.10	16.200	.688	.928
Y10	33.10	16.411	.633	.930
Y11	33.40	17.305	.536	.933

Source: Data analysis

Table 4 above proves that each instrument's test on the collaboration ability variable (Y) is valid because it exceeds the predetermined reference value. The smallest item value for the collaboration ability variable is 0.536. This also shows that each item's value is greater than the r table of 0.468, which means it is valid. The validity test results showed that all instrument items are correct, do not deviate, and are in accordance with the actual situation (Yusup, 2018).

*Reliability Test Results*

Reliability testing is carried out to determine whether an instrument can be trusted for its correctness or not (Amanda et al., 2019). The results that can be obtained in the reliability test are as follows:

Table 4. Reliability Test for Variables Using the Microsoft Teams Application

Cronbach's Alpha	Part 1	Value	.885
		N of Items	6a
	Part 2	Value	.807
		N of Items	5b
Total N of Items			11
Guttman Split-Half Coefficient			.821
a. The items are: X1, X2, X3, X4, X5, X6.			
b. The items are: X6, X7, X8, X9, X10, X11.			

Source: Data analysis

Table 5 shows the Cronbach's Alpha value for each variable, namely Part 1 Value 0.885 and Part 2 Value 0.807. These results mean the questionnaire is reliable because Cronbach's Alpha value is > 0.60.

Table 5. Collaboration Ability Variable Reliability Test

Cronbach's Alpha	Part 1	Value	.924
		N of Items	6a
	Part 2	Value	.833
		N of Items	5b
Total N of Items			11
Guttman Split-Half Coefficient			.858
a. The items are: Y1, Y2, Y3, Y4, Y5, Y6.			
b. The items are: Y6, Y7, Y8, Y9, Y10, Y11.			

Source: Data analysis

Table 6 shows that each variable's Cronbach's Alpha value is a Part 1 Value of 0.924 and a Part 2 Value of 0.833. These results prove that the questionnaire is reliable because it obtained a Cronbach's Alpha value > 0.60. The reliability test results show that the instrument is reliable, and when tested several times, the measurements can provide relatively the same results (Yusup, 2018).

*Normality Test and Linearity Test*

Before testing the hypothesis, it is necessary to undergo a normality test and linearity test. The normality test determines whether the data obtained is normally distributed or vice versa

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(Nuryadi et al., 2017). The linearity test measures whether the data obtained has a linear relationship or not.

### Normality Test Results

The normality test in this study used the Kolmogorov-Smirnov test via SPSS version 23. The normality test results obtained the following results:

Table 6. Kolmogorov-Smirnov Normality Test

One-Sample Kolmogorov-Smirnov Test		
		Unstandardized Residual
N		93
Normal Parameters <sup>a,b</sup>	Mean	.0000000
	Std. Deviation	3.68081451
Most Extreme Differences	Absolute	.081
	Positive	.081
	Negative	-.081
Test Statistic		.081
Asymp. Sig. (2-tailed)		.160 <sup>c</sup>

Source: Data analysis

Table 7 can be shown in the Asymp section. Sig. (2-tailed) obtained a value of 0.160, which means this result is more significant than 0.05. Based on these results, it was concluded that the research data was normally distributed, meaning there were no significant differences in the results obtained and vice versa.

### Hypothesis Testing

A simple linear regression test was conducted to determine whether the regression was related to the independent and dependent variables. This can be known when the sig value is in the data. If the value is smaller than 0.005, then it can be concluded that there is a relationship. The results of the simple linear regression test have been processed as follows:

Table 7. Simple Linear Regression Test

Model		Coefficients <sup>a</sup>			t	Sig.
		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta		
1	(Constant)	17.526	2.759		6.352	.000
	Penggunaan Microsoft Teams (X)	.546	.075	.605	7.253	.000

a. Dependent Variable: Kemampuan Kolaborasi (Y)

Source: Data analysis



Table 9 shows the Constant value of 17.526 while the Use of Microsoft Teams value is 0.546. These results indicate that the effect of using Microsoft Teams on collaboration capabilities is significant. Therefore, it can be concluded that H1 has a significant influence on the collaboration abilities of Certified Independent Study/Project students at PT. Let's Learn Smart Indonesia. The following values for the regression equation can be written:

$$Y = a + bX \quad (1)$$

$$Y = 17,526 + 0,546X \quad (2)$$

The value of this equation shows that the consistent value of the collaboration ability variable is 17.526. The regression coefficient also shows a positive value, so it can be concluded that the direction of influence of variable X on Y is positive.

The significance value in Table 9 can be obtained at  $0.000 < 0.05$ . So, it can be concluded that the Microsoft Teams usage variable (X) influences the collaboration ability variable (Y). Then, based on the t value, it can be seen that the calculated t value is 7.253, which is greater than 1.990. This shows that the Microsoft Teams usage variable (X) influences the collaboration ability variable (Y). In other words, using Microsoft Teams impacts the collaboration ability of Independent Study/Project students in completing project assignments, such as providing facilities for dyslexic children to learn English when using virtual meetings with flexible times.

The sig value can be used to determine the influence between the independent and dependent variables. If the result obtained is less than 0.05, it influences the variables and vice versa. The processed results are as follows.

Table 8. Hypothesis Test Results (Simultaneous Test)

		ANOVA <sup>a</sup>				
	Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	720.537	1	720.537	52.604	.000b
	Residual	1246.452	91	13.697		
	Total	1966.989	92			

a. Dependent Variable: Kemampuan Kolaborasi (Y)

b. Predictors: (Constant), Penggunaan Microsoft Teams (X)

Source: Data analysis

Table 10 shows that the calculated F value is 52.604. This is because there is a significance level of  $0.000 < 0.05$ , so the regression model on this data can be used to predict the collaboration ability variable or have an influence on the Microsoft Teams usage variable (X) and the collaboration ability variable (Y).

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*Coefficient of Determination (R<sup>2</sup>)*

The coefficient of determination measures the extent to which a model can explain the dependent variable. The results of the Coefficient of Determination test are as follows.

Table 9. Coefficient of Determination Test Results (R<sup>2</sup>)

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.605a	.366	.359	3.701

a. Predictors: (Constant), Penggunaan Microsoft Teams (X)

Source: Data analysis

Table 11 shows that the correlation or relationship value (R) is 0.605. Furthermore, the output obtained by the coefficient of determination (R Square) is 0.366. Thus, it can be interpreted that using Microsoft Teams influences collaboration abilities by 36.6%. Meanwhile, 63.4% are influenced by other variables such as communication skills, creativity, critical thinking skills, etc.

*R Square Test*

Effective contribution measures the contribution amount from an independent variable to the dependent variable in regression analysis. The following are the results of effective contributions:

Table 10. R Square Test

Variable	Koefisien Regresi (Beta)	Koefisien Korelasi (r)	R square
X1	0,605	,605	0,366

Source: Data analysis

Effective Contribution of Microsoft Teams Usage Variables (X) to Collaboration Ability (Y):

$$SE(X1)\% = \text{Betax1} \times r_{xy} \times 100\% \quad (1)$$

$$SE(X1)\% = 0,605 \times 0,605 \times 100\% \quad (2)$$

$$SE(X1)\% = 36,6\% \quad (3)$$

The data above shows that the use of Microsoft Teams has a value of 36.6%. Because this research only uses one variable, X1, the effective contribution of the variable (X1) to collaboration ability (Y) is 36.6%. So, it can be concluded that variables related to using Microsoft Teams significantly influence collaboration capabilities.

## Discussion

### **The Effect of Using the Microsoft Teams Application on Student Collaboration Abilities**

Based on research, using the Microsoft Teams application has a significant and positive influence on collaboration abilities. Microsoft Teams helps Independent Study/Project students learn activities such as interacting, collaborating, and completing project assignments from PT. Let's Learn Smart Indonesia. These learning activities can be carried out quickly because the Microsoft Teams application can be integrated with several other Microsoft applications. Microsoft Teams, integrated with several Microsoft applications, can allow students to make maximum use of learning. One example of using Microsoft Teams in learning is that students can collaborate with their colleagues through existing sections such as Microsoft OneNote to manage digital notes together. This encourages students to manage the use of Microsoft Teams in learning activities.

The Microsoft Teams application is effective during learning because it can repeat material in just one application and collaborate directly together (Damayanti & Mulyadi, 2020). Through Microsoft Teams, collaboration regarding managing digital records, tasks, and projects carried out in groups is connected, and these activities can be carried out without having to meet face to face. The choice of this application is very appropriate to use in learning activities so that they continue to be implemented. This is because using Microsoft Teams is easy to access and use in the learning process, making it easier to understand the material (Hikmah, 2021).

These findings support research (Nafisah & Fitriyati, 2021) which explains that using Microsoft Teams can help optimize collaboration, hone skills, and encourage active participation in learning activities. This platform provides a collaborative space for students to participate with other students or educators. Besides utilizing existing collaboration spaces, students can also manage other features, such as keeping digital notes. This has a positive impact, namely improving learning outcomes and honing one's abilities (S. Rahayu et al., 2021). Thus, using Microsoft Teams can increase student participation in managing and understanding features that can be integrated with other applications.

This is what differentiates the Microsoft Teams application from other applications such as Google Classroom, Edmodo, and Zoom, namely that the Microsoft Teams application can be integrated with various applications that work together with Microsoft, such as the Flipgrid application, Microsoft OneNote, Microsoft Excel, Microsoft Sway, Microsoft PowerPoint. The principle of efficiency can be obtained by using Microsoft Teams; not only can you repeat material, but you can manage material from various applications integrated into Microsoft Teams. Of all the applications in Microsoft Teams, almost half of students choose the Microsoft OneNote application to help complete their assignments. Rational choices are made by considering the effectiveness and efficiency of working in the same application. James S Coleman in Nursalam et al. (2016) explains that before each sort and chooses actions; they will think and adjust to the goals they want to achieve. This is intended to obtain optimal performance. Using the Microsoft Teams application also makes things easier for users through the group management feature (Mufida & Salamah, 2021). Microsoft Teams' presence can provide convenience to a broad audience, including educators and students, especially in managing material in each lesson through groups (Putra et al., 2020).

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The Microsoft Teams application has a group management feature that can create several sections for selecting the application used, and several accounts can manage this group management feature. This supports increasing collaboration skills in a group. Managing the group feature allows students to collaborate in completing their assignments. One of the collaborative activities carried out by Independent Study/Project students is the capstone project to solve a project-based problem. Through the capstone project provided, several problems exist in Indonesia, such as learning for dyslexic children, using Microsoft applications to improve learning in remote areas, etc. Collaborative activities in completing the capstone project can be done directly in the Microsoft Teams application, which is integrated with several Microsoft applications, so there is no need to open too many tabs in the application.

Collaborative activities carried out during Independent Studies/Projects can improve students' collaborative abilities to solve the problems they are facing. Therefore, collaborating can provide space for oneself to develop and compete in the present and the future. This was also stated by (Anggelita et al., 2020), that collaboration skills are essential in the world of work and improve other personal abilities such as critical thinking, creativity, and problem-solving. This ability can form a cooperative attitude in completing several tasks, and each person's role is to help the work achieve specific goals (S. Rahayu et al., 2019). If this form of cooperation in collaborative activities is carried out optimally, it will form other skills, such as communication. These findings align with research from (Daud & Dewanto, 2016) that collaboration skills will encourage students to have social attitudes that will be useful in the world of work. So, this collaboration activity is effectively carried out to improve personal collaboration abilities. In addition, this collaboration capability can be carried out flexibly through Microsoft Teams.

### **CONCLUSION**

The use of Microsoft Teams influences the collaboration abilities of PT Certified Independent Study/Project students. Let's Learn Indonesia Smart Cycle 2. Microsoft Teams has the advantage of being integrated with various Microsoft applications, which are very effective for educators and students. Using Microsoft Teams is suitable for learning anywhere and anytime. This encourages them to contribute to managing their own teams, and they can also collaborate with other students or educators. The Microsoft Teams application can provide a collaboration space for Independent Study/Project students to hone their skills. This can improve the collaboration abilities of each individual and become a provision in the world of work.

This research's limitation is that it only focuses on PT Certified Independent Studies/Projects. Let's Learn Smart Indonesia Cycle 2 in 2022. This is because each cycle has a different learning path. Recommendations for future researchers include testing several other factors, such as communication skills and critical creativity, using Microsoft Teams. Meanwhile, students can explore Microsoft Teams features to complete other course assignments.

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