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# Financial Literacy and Digital Finance: Determinants of MSMEs Sustainability in Ternate City

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**Abstract**

*This study aims to analyze the effect of financial literacy and digital finance on the sustainability of MSMEs in Ternate City. Data in this study are the owners/managers of SMEs in Ternate City. Collecting data using a questionnaire to 115 respondents. Data analysis using multiple regression analysis. The Financial literacy variable was measured using education (a combination of formal and non-formal education levels). This study shows that financial literacy has no significant effect on the sustainability of MSMEs, while digital finance offers substantial results. In addition, this study also finds that variations in training have an impact on increasing financial literacy on the sustainability of MSMEs. Theoretically, this research contributes to the latest view on the measurement of financial literacy. In addition, these findings support research related to financial literacy, digital finance, and the sustainability of MSMEs. Finally, from a practical point of view, this study provides a policy direction for the government in policymaking, especially in improving human resources with technical support to ensure the quality and sustainability of MSMEs.*

**Keywords: Digital Finance; Education; Financial Literacy; MSME's Sustainability; Training**

## INTRODUCTION

Organizational sustainability is still a concern for practitioners and researchers today (Malesios et al., 2018; Sancha et al., 2016). They are not limited to profit or non-profit organizations or the organization's size (Lewis et al., 2015). Linnenluecke et al. (2009) explained that the organization's activities would contribute to the sustainability of the organization, where sustainability is closely related to the economic and social



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aspects of the overall organizational system (Lozano, 2012; Lozano et al., 2015). Concerning MSMEs, along with the increasing development of an increasingly complex global economy, MSMEs are very vulnerable to facing significant risks to their sustainability (Hörisch et al., 2015; Jansson et al., 2017; Kiesnere & Baumgartner, 2019). Moreover, the spread of the Covid-19 pandemic has also affected the risk of business continuity worldwide, including MSMEs in Indonesia.

MSMEs still play an essential role in the economy of every country. In Indonesia, the contribution of MSMEs to the workforce is 96.9 percent and dominates 99.9 percent of the total business units (Bank Indonesia, 2021). However, the gift of MSMEs to GDP is still relatively small. In 2019, MSMEs contributed 9.5% and 13.6%, respectively, to GDP, much lower than the contribution of large enterprises, which amounted to 37.3% and 39.5%. (Bank Indonesia, 2021). This contribution was also affected by the Covid-19 pandemic, in which, in 2021, BPS released data showing that 22.24 percent of MSMEs in Indonesia were unable to operate. Of that, 1.87 percent stopped working, and 20.37 percent just started operations after Covid-19 (Badan Pusat Statistik, 2021). This condition directly impacts the more negligible contribution of MSMEs to the National GDP.

Stimulus is needed to encourage the sustainability of MSMEs during the Covid-19 pandemic and intense business competition, which causes the chances of MSMEs to be sustainable (Acheampong & Hinson, 2019; Hamdan, 2021). The stimulus can be in the form of education (Hunt et al., 2013), training (Hunt et al., 2013; Lee, 2016), and digital financing (Daud et al., 2022; Mutamimah & Hendar, 2020; Thathsarani & Jianguo, 2022).

Education and training are essential instruments in improving the human resources of MSME actors. Especially in finance, the educational and training background makes MSME actors better understand their financial condition (Harnani et al., 2022) and improve financial literacy. Hunt et al. (2013) stated that education and training are essential in encouraging the development of MSMEs. However, not all MSME actors are proactive in engaging in such learning, so it is necessary to be enabled to adopt a practical and maximum sustainable learning and training environment so that MSMEs can survive and prosper. In line with Hunt, Lee (2016) statproceeded that the inactivity of MSMEs in improving their human resources caused the market system to be unable to correct the imbalance between MSMEs and large companies in developing countries' human resources. Successful financial management is highly dependent on knowledge of finance. People who access, interpret and use their understanding of finance are called financial literacy (Top & Özbek, 2022). A person with low financial literacy can make


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mistakes in business decision-making, which means wasting his resources (Sahin et al., 2016).

Apart from financial literacy, the other most important thing is technology. The limitations of MSMEs in access to financing will be an obstacle to optimizing the sustainability of MSMEs (Martinez et al., 2019). One of the reasons for this limitation is that these MSMEs do not have adequate collateral and high-interest rates (Yoshino, 2016), which in turn creates a financing gap between the needs and capital of MSMEs (Mutamimah & Hendar, 2020). Therefore, along with the development of the digital technology era, the involvement of MSME actors in using digital technology cannot be avoided. Especially in the financial sector, digital financing is beneficial for the public in assessing financial products and services (Daud et al., 2022).

Moreover, with innovations in digital financing, an entity can seize opportunities, especially MSME actors, to carry out their financial activities anywhere with ease, safety, and control (Hendiarto et al., 2021). Adopting digital tools and technology provides many benefits for MSMEs (Thathsarani & Jianguo, 2022). On the other hand, the low ability of managers and employees to apply technological innovations in business will hurt business competitiveness (Herliana, 2015). However, technological adaptation concerning financial activities is minimal, especially for large-scale companies (Sharma & Shastri, 2020; Thathsarani & Jianguo, 2022).

There are several studies on financial literacy and digital finance on the sustainability of MSMEs. Hamdan (2021) Hamdan researched the competence of human resources, which is also part of financial literacy, Nurjannah et al. (2022) and Thathsarani and Jianguo (2022) used the MSME performance approach as a measure of MSME sustainability. Even though it gives the same results in financial literacy and digital finance, the indicators that make up these variables differ between these studies. Bajzik (2021) stated that heterogeneity or differences in research results were caused by several factors, one of which was the characteristics of the data used in the study. This study uses different measurement indicators on financial literacy variables. This study includes one of the indicators of the Sustainability Development Goal's, namely "quality of education" and collaborates with the intensity of training for MSME actors as a measurement of financial literacy variables. It is hoped that it can contribute to deepening knowledge of the discriminant factors in the sustainability of MSMEs in Indonesia in the perspective of different determinants of indicators, although the intention to respond to research results on MSMEs is relatively rarely used in policy making.


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## THEORETICAL FRAMEWORK AND HYPOTHESIS DEVELOPMENT

### Literature review

### Financial Literacy and MSME Sustainability

The Association of Chartered Certified Accountants defines financial literacy as knowledge about understanding finance and then applying it in business (ACCA, 2014). Financial literacy is people's knowledge of financial concepts used in decision-making (Alshebami & Al Marri, 2022; Stolper & Walter, 2017). Hamdan (2021) found that the competence of human resources, which is also part of financial literacy, significantly affects the competitiveness and sustainability of MSMEs in Serang City. The same result showed by Wahyono and Hutahayan (2021) that good financial literacy affects the effectiveness of MSME financial decision-making, improving the sustainability of MSMEs. Buchdadi et al. (2020) confirmed the results of the two studies, where the research shows that financial literacy has a positive impact on the performance of MSMEs

The sustainability of MSMEs depends highly on the management's ability to understand their business's financial condition (Top & Özbek, 2022). Low literacy skills risk management decision-making in their business and result in the loss of their economic resources (Sahin et al., 2016).

$H_1$: Financial literacy has a positive effect on the sustainability of MSMEs in Ternate City.

### Digital Finance and MSME Sustainability

From a practitioner's perspective, digital finance is a financial service delivered via a mobile phone, personal computer, or internet connection to a digital payment system (Manyika et al., 2016; Ozili, 2018). In this case, digital finance is an innovation of communication, and customer interaction carried out through financial products or software in the financial sector (Gomber et al., 2017; Widarwati et al., 2022). Previous research has found that digital finance can directly assist MSMEs in supporting their sustainability. Nurjannah et al. (2022), who researched the digital impact of MSME finance in Indonesia, found that digital finance had a significant impact on the sustainability of the MSME business. By using the MSME performance approach as MSME sustainability, the findings of Thathsarani & Jianguo (2022) and Shofawati (2019) show that digital finance also affects the performance of MSMEs.

$H_2$: Digital finance has a positive effect on the sustainability of MSMEs in Ternate City.



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## RESEARCH METHOD

### Data and Sample

Data collection uses a questionnaire that is distributed directly to MSME actors. Unfortunately, researchers cannot use online questionnaires due to the limitations of researchers in obtaining contact information for MSME actors. Based on data from the Ternate City Cooperatives and MSMEs Service, the population of MSMEs in 2024 is 14,210. Sampling techniques use a random sampling method. Determination of the number of samples in this study using the Slovin formula with an alpha level of 0.1, and the number of pieces obtained was 99.30 (rounded by 100) respondents. To avoid the drop-out rate of data at the time of analysis, the researcher added 15 percent so that the total sample was 115 respondents.

Analysis using multiple regression with the following formula:

$$\mathbf{SUS = a + b1FL + b2DF + e} \quad \mathbf{(1)}$$

Notes:
SUS : MSME Sustainability
FL : Financial literacy
DF : Digital financial

### Variable Measurements

#### *Financial Literacy*

Financial literacy describes the ability of MSME actors to understand MSME business finance. It is measured by including aspects of the quality of education (which is one of the SDG's indicators), the level of education, and training (Fadilah, 2019). Education level refers to Government Regulation no. 57 of 2021 concerning Indonesian National Education Standards Article 2 paragraph (2) and the classification of educational standards according to the 2011 International Standard Classification of Education (ISCED, 2012). Furthermore, educational qualifications are separated into two groups, namely Primary and Secondary Education (SD-SMA) and Higher Education (Diploma/bachelor). The combination of educational and training qualifications then forms the following groups: (1) Primary and Secondary Education Respondents without training = 1; (2) Respondents Higher education without training = 2; (3) Primary and Secondary Education Respondents with training = 3; and (4) Respondents Higher education with training = 4


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***Digital Financial***

Digital finance is measured using a measurement developed by Lyons & Kass-Hanna (2021), which consists of 5 dimensions and eight sub-dimensions, namely (1) basic financial knowledge, (2) basic digital knowledge, (3) awareness of available DF, (4) awareness of positive financial attitudes and behaviours, (5) practical know-how of operating DFS applications, (6) positive financial attitudes, (7) Positive financial behaviours through DF, and (8) self-protection from online scams and frauds.

***MSME Sustainability***

The sustainability variable of MSMEs uses social measurements developed by Polasek in Vukosavljevic et al. (2014). This measurement simplifies the ISO 26000 standard on Guidance Standards on Social Responsibility.

**Instrumental Testing**

The validity test uses the person correlation value with a significance level of 0.05 (Hair et al., 2019). The reliability test was carried out by looking at Cronbach's Alpha value, which was above 0.7 (Hair et al., 2019).

## RESULTS AND DISCUSSION

### Respondent Demography

Respondents in this study were all managers/owners of MSMEs in Ternate City. Estimated by the Slovin formula with an alpha value of 0.1, the number of respondents was 99.30 and rounded up to 100. To avoid the drop-out rate on the questionnaire, the researchers added 15 percent to the number of respondents so that 115 respondents were obtained. Of the 115 questionnaires distributed, only one questionnaire (0.87%) did not return. Therefore, the total of questionnaires that meet the requirements for analysis is 110 respondents. The results of the questionnaire distribution are shown in Table 1.

**Table 1. Questionnaire Distribution Results**

| Item | Sum | % |
|---|---|---|
| Questionnaire distributed | 115 | 100 |
| The questionnaire that does not return | 1 | 0,87 |
| Returning Questionnaire | 114 | 99,13 |
| The questionnaire that cannot be processed | 4 | 3,84 |



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| | | |
|---|---|---|
| Processable questionnaire | 110 | 95,65 |
| *Response Rate* | | 95,75 |

Source: Processed Data

Fifty-four respondents (49.09%) were male, and 56 (50.91%) were female. Based on the level of education, 60 respondents (54.55 percent) were at the senior high school level, 44 respondents (S1) were at Strata One (S1), 44 respondents (40%), and Strata Two (S2) were six respondents (5.45%). Respondents based on training intensity show that all respondents have attended MSME development training, with a passion of 2 times as many as 60 respondents (54.05%), 3-4 times as many as 45 respondents (40.91%), and >4 times as many as five respondents (4.55%). Characteristics of respondents based on gender, level of education, and intensity of training are shown in Table 2.

**Table 2. Respondents Based on Gender and Education Level, and Training Intensity**

| Group | Criteria | Sum | % |
|---|---|---|---|
| Sex | Male | 54 | 49,09 |
| | Female | 56 | 50,91 |
| | Total | 110 | 100 |
| Level of Education | Primary School (SD) | 0 | 0 |
| | Junior high school (SMP) | 0 | 0 |
| | Senior High School (SMA) | 60 | 54,55 |
| | Bachelor (S1) | 44 | 40,00 |
| | Magister (S2) | 6 | 5,45 |
| | Doctoral (S3) | 0 | 0 |
| | Total | 110 | 100 |
| Training Intensity | ≤ 2 times | 60 | 54,55 |
| | 3 - 4 times | 45 | 40,91 |
| | > 4 times | 5 | 4,55 |
| | Total | 110 | 100 |

Source: Processed Data

Of the ten types of digital finance services, only four types are used mobile banking, internet banking, E-Money, and E-Wallet. All MSME actors in Ternate City use


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mobile and internet banking for payment, purchase, and transfer. On the other hand, E-Money and E-Wallet are only used by 19 SMEs (17.27%) for security and convenience in transactions (Edeh et al., 2021). Respondents based on the use of digital finance services can be seen in Table 3:

**Table 3. Respondents Based on Digital Finance Service Type**

| No | Type of Services | Service use | | | | Total |
|---|---|---|---|---|---|---|
| | | Yes | % | No | % | |
| 1. | Mobile Banking | 110 | 100 | 0 | 0 | 110 |
| 2. | Internet Banking | 110 | 100 | 0 | 0 | 110 |
| 3. | E-Money | 19 | 17,27 | 91 | 82,73 | 110 |
| 4. | E-Wallet | 19 | 17,27 | 91 | 82,73 | 110 |
| 5. | P2P Lending | 0 | 0 | 110 | 100 | 110 |
| 6. | Cash Loan | 0 | 0 | 110 | 100 | 110 |
| 7. | Stock | 0 | 0 | 110 | 100 | 110 |
| 8. | Mutual Fund | 0 | 0 | 110 | 100 | 110 |
| 9. | Digital Gold | 0 | 0 | 110 | 100 | 110 |
| 10. | Crypto | 0 | 0 | 110 | 100 | 110 |

Source: Processed Data

MSME actors are not used for financing products such as P2P lending or cash loans. They are traumatized over fraudulent financing under the pretext of investing in North Maluku in 2018 and 2019, with the mask of financial technology, with billions of rupiah in losses (for example, the case of Karapoto and HIPO International).

**Validity and Reliability**

The results of testing the validity of digital finance variables are shown in Table 4.

**Table 4. Digital Finance Variable Validity Test Results**

| Questionnaire Items | Pearson Correlation | N | Sig | Note |
|---|---|---|---|---|
| DF1 | 0.669** | 110 | .000 | Valid |
| DF2 | 0.596** | 110 | .000 | Valid |
| DF3 | 0.795** | 110 | .000 | Valid |
| DF4 | 0.723** | 110 | .000 | Valid |



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| | | | | |
|---|---|---|---|---|
| DF5 | 0.609** | 110 | .000 | Valid |
| DF6 | 0.728** | 110 | .000 | Valid |
| DF7 | 0.730** | 110 | .000 | Valid |
| DF8 | 0.673** | 110 | .000 | Valid |
| **. Correlation is significant at the 0.01 level (2-tailed). | | | | |
| *. Correlation is significant at the 0.05 level (2-tailed). | | | | |

Source: Processed Data

The results of testing the validity of the digital finance variable in Table 4 show that all statement items have a significance value of less than 0.05. Thus, it is concluded that all statement items are valid. Testing the validity of the MSME sustainability variable shows that the significance value of all statement items is less than 0.05, so it can be concluded that all statement items are valid. The results of testing the validity of the MSME sustainability variable are shown in Table 5.

**Table 5. Results of Testing the Validity of the MSME Sustainability Variable**

| Questionnaire Items | Pearson Correlation | N | Sig | Note |
|---|---|---|---|---|
| SUS1 | 0.635** | 110 | 0.000 | Valid |
| SUS2 | 0.562** | 110 | 0.000 | Valid |
| SUS 3 | 0.738** | 110 | 0.000 | Valid |
| SUS 4 | 0.745** | 110 | 0.000 | Valid |
| SUS 5 | 0.660** | 110 | 0.000 | Valid |
| SUS 6 | 0.650** | 110 | 0.000 | Valid |
| SUS 7 | 0.543** | 110 | 0.000 | Valid |
| SUS 8 | 0.638** | 110 | 0.000 | Valid |
| SUS 9 | 0.608** | 110 | 0.000 | Valid |
| SUS 10 | 0.632** | 110 | 0.000 | Valid |
| SUS 11 | 0.637** | 110 | 0.000 | Valid |
| **. Correlation is significant at the 0.01 level (2-tailed). | | | | |
| *. Correlation is significant at the 0.05 level (2-tailed). | | | | |

Source: Processed Data


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The reliability test results show that the digital finance variable and the MSME sustainability are more significant than 0.7. This value indicates that the statement items that measure digital finance and the sustainability of MSMEs are declared reliable. The results of testing the reliability of digital finance variables and the sustainability of MSMEs are shown in Table 6.

**Table 6. Digital Finance Variable Reliability Test Results and MSME Sustainability**

| Variable | Cronbach's Alpha |
|---|---|
| Digital Finance | 0.899 |
| MSME sustainability | 0.913 |

Source: Processed Data

## Hypothesis Testing

### *Estimation of Financial Literacy Variables*

The first stage in testing the hypothesis is to form a financial literacy variable based on the education level indicator. The education level will form two groups: Primary and secondary education (coded 1) and Higher education (coded 2). The results of the grouping of education levels are as follows:

**Table 7. Education Indicator Grouping**

| Level of Education | Number of Respondents | Group | Number of Groups | % |
|---|---|---|---|---|
| Primay school (SD) | 0 | 1 | 60 | 54.55 |
| Junior high school (SMP) | 0 | 1 | | |
| Senior High School (SMA) | 60 | 1 | | |
| Bachelor (S1) | 44 | 2 | 50 | 45.45 |
| Magister (S2) | 6 | 2 | | |
| Doctoral (S3) | 0 | 2 | | |
| **Total** | 110 | | 110 | 100 |

Source: Processed Data


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In the second stage, the results of the education grouping in Table 7 are combined with the training intentions (see Table 2). The measurement of training intention is one if you have attended and 0 if you have never participated. The combination of the education and intention groups then forms the literacy variable according to the variable formation criteria. The combination results are shown in Table 8.

**Table 8. Combination of Education Group and Training Intention (Financial Literacy Variable)**

| Education Group | Code (Financial Literacy) | Number of Respondents | % |
|---|---|---|---|
| Primary and secondary education without training | 1 | 0 | 0 |
| Higher education without training | 2 | 0 | 0 |
| Primary and secondary education without training | 3 | 60 | 54.55 |
| Higher education with training | 4 | 50 | 45.45 |

Source: Processed Data

***Regression Result***

The value of the R square indicates model fit. For example, the test results show that the R2 value is 0.440, which can be explained that 44 percent of the variance of the business sustainability variable can be explained by the financial literacy and digital finance variables. The test results are shown in Table 9.

**Table 9. Model of Fit**

| Model | R Square |
|---|---|
| 1 | 0.440 |

Source: Processed Data

Regression testing of financial literacy and digital finance variables on the sustainability of MSMEs found that the significance value of financial literacy was 0.814 > 0.05. Hence, hypothesis 1 states that financial literacy has a positive effect on the sustainability of MSMEs, is rejected. On the other hand, the significance value of digital


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finance is 0.000 <0.05, so the second hypothesis, which states that digital finance has a positive effect on the sustainability of MSMEs, is accepted. The results of the regression test are shown in table 10.

**Table 10. Regression Test Results**

| Model | B | t-stat | Sig | Conclusion |
|---|---|---|---|---|
| Constant | 1,796 | 4,449 | 0,000 | |
| Financial Literacy | 0,020 | 0,236 | 0,814 | Not Significant |
| Digital finance | 0,568 | 9,146 | 0,000 | Significant |

Source: Processed Data

## DISCUSSION

### *Financial Literacy on MSME Sustainability*

The results showed that financial literacy did not affect the sustainability of MSMEs in Ternate City. This finding confirms that the level of education and training for MSME development as a measure of management's understanding of financial literacy does not affect the sustainability of MSMEs in Ternate City. This finding is in line with the research by Cowling et al. (2018), which measured the entrepreneurial experience of MSMEs in the United Kingdom. Measurement of entrepreneurial venture is based on the level of education and training. The results of his research show that entrepreneurial experience (level of education and training) has no impact on the performance of MSMEs in the United Kingdom.

Eresia-Eke and Raath (2013) also found the same thing, that the level of education and training is only to improve personal competence. They concluded that the level of education and training was indeed good for the sustainability of MSMEs. Still, the low perception of the survival of MSMEs was the cause of the failure of education and training in ensuring the sustainability of MSMEs. On the other hand, the type of training is very monotonous and tends to be unvaried and also affects the failure of education and training on the sustainability of MSMEs. Variations in training directed at increasing entrepreneurship education will impact entrepreneurship intention (Cahyani et al., 2018) to increase perceptions about the continuity of the MSME business.


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***Digital Finance on MSME Sustainability***

Table 10 shows that digital finance significantly affects the sustainability of MSMEs in Ternate City, which supports the hypothesis. In line with Thathsarani and Jianguo (2022) dan Shofawati (2019), digital finance is essential in improving MSMEs' performance to maintain sustainability. That proves that guarantees for business continuity, including MSMEs, must be supported by financial technology factors, namely digital finance (Luo et al., 2022). Digital finance will ultimately encourage efficient and effective business financial management. Luo et al. (2022) dan Hasan et al. (2022) state that one of the factors of business continuity lies in good governance, ensuring the efficiency and effectiveness of managing its economic resources.

## CONCLUSION

The sustainability of MSMEs cannot be separated from management knowledge in understanding finance and technological support supporting managers in making business decisions. Financial literacy as a measure of financial management knowledge has been a concern in several previous studies. A good understanding of the business's financial condition will encourage the sustainability of MSMEs in an increasingly complex business era. In addition, digital financial support can assist management in managing business assets, so they are not wasted. In the end, the role of financial literacy and digital finance can provide maximum efficiency and effectiveness of business management that ensures the future sustainability of MSMEs.

The results of this study indicate that financial literacy does not affect the sustainability of MSMEs in Ternate City. On the contrary, digital finance significantly affects the sustainability of MSMEs in Ternate. The owner or manager's perception of the sustainability of MSMEs is vital in ensuring the sustainability of MSMEs. In addition, the intensity and type of training that tends to be monotonous and not varied causes education and training to have no impact on the survival of MSMEs. This research also proves that digital finance is a tool that can facilitate management to ensure that its financial activities are more efficient and effective and will ultimately impact the sustainability of MSMEs.

## Limitation

This study uses education and training indicators to measure management's understanding of financial literacy.



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**Suggestions**

Based on the findings of this study, future research can discuss further indicators of financial literacy, not only at the level of education and training but also on aspects of perceptions about financial literacy and the sustainability of MSMEs.

**Implication**

Practically, this research offers guidance to the government on policy formulation, particularly in enhancing the capabilities of human resources through technical assistance to ensure the quality and longevity of micro, small, and medium enterprises (MSMEs).

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