Indonesian Journal of Business Analytics (IJBA)
Vol .5 , No.4 (August) 2025: 3005-3016

The Effect of Regeneration and External Knowledge on Business Survival Through Innovation Practices as Intervening Variables in MSME Crackers in Tanggulangin, Sidoarjo Regency

Sahda Zerlinda[1*], Muhadjir Anwar[2], Arief Bachtiar[3]
Universitas Pembangunan Nasional Veteran Jawa Timur
Corresponding Author: Sahda Zerlinda: szerlynda@gmail.com

ARTICLEINFO
Keywords: Regeneration, Business, Survival, Crackers

Received : 20, June
Revised : 22, July
Accepted: 20, August

ABSTRACT

This study examines the impact of regeneration and external knowledge on business sustainability in the Tanggulangin cracker MSME in Sidoarjo Regency, by implementing innovation practices as a modification. This study uses a quantitative research approach and asks questions to 65 respondents who are MSME actors who have a perspective on the business regeneration succession process and regularly participate in training activities organized by the local government. By using SmartPLS 4.0 to analyze the data, the findings show that regeneration and external knowledge have a significant positive effect on business sustainability. This finding is consistent with the Theory of Planned Behavior, which states that intention is a function of three determinants: the first is personal, the second reflects social influences, and the third is related to control with problems. Intention plays a unique role in directing action, serving as a link between a person's deep beliefs and desires and specific actions.

DOI: https://doi.org/10.55927/ijba.v5i4.15114

ISSN-E: 2808-0718
https://journal.formosapublisher.org/index.php/ijba

INTRODUCTION

Indonesia has many MSMEs, particularly in the food industry

Indonesia's diverse cultural traditions, with their unique regional characteristics, contribute to the variety of food products created, which in turn has led to a surge in the growth of MSMEs in the food sector. Sidoarjo Regency is a region located in East Java Province, with a population of 1,996,825 in 2024. Known as the City of Shrimp, Sidoarjo is famous for its various shrimp-based processed products, including crackers, which are produced in Tanggulangin District. Tanggulangin District is an area in Sidoarjo Regency with small-scale industries and MSMEs that produce various types of crackers in a wide range of flavors.

Over time, the prospects for MSMEs have declined

As family businesses age, the owners inevitably make changes. One such change is the generational succession process. In 2000, there were 252 cracker MSMEs operating in Tanggulangin, peaking in 2020. Since then, one by one, cracker MSMEs in Tanggulangin have closed, leaving only 180 still in operation. Based on direct interviews with one cracker MSME owner in Tanggulangin, Sidoarjo Regency, it was revealed that there is still a lack of interest from his children or grandchildren in continuing the cracker business. This is because some of his children prefer office jobs, which they perceive as "cooler." This mindset has led the informant to continue managing the business independently.

On the other hand, a second informant—also a cracker MSME owner in Tanggulangin, Sidoarjo Regency—has successfully passed the business on to his children. He stated that he prepared the business for his children so they could achieve financial stability in the current difficult job market. As a result, his cracker MSME now has several branches across different villages in Sidoarjo Regency.

This study attempts to introduce Innovation Practices as a mediating or intervening variable

One of the most important aspects in developing a business is innovation. A product is considered attractive not only in terms of taste but also in its packaging strategy. Packaging design is one of the key drivers of product sales (Makaroni, 2023).

In MSMEs, cracker innovations include packaging and flavor variants. Packaging that was once done with thin plastic is now vacuum-sealed in transparent plastic, making it look cleaner, more hygienic, and professional. Flavor innovations have also been introduced: where previously there was only the original flavor, now there are new variants like balado (spicy), cheese, grilled corn, and sweet-spicy flavors. This variety has increased consumer buying interest. Product innovation doesn't just mean creating something new, but also improving existing products.

LITERATURE REVIEW

Regeneration

According to Harmis (2020), regeneration refers to the replacement of business actors with individuals who have sufficient capability to manage the business and respond to environmental dynamics. Generational change and business continuity mean continuing the production process. Regeneration is expected to bring new "energy," both physical and non-physical. The ability to keep learning and master technology—especially information technology—will positively impact competitiveness.

External Knowledge

According to Adam & Alarifi (2021), external knowledge refers to knowledge assistance provided to business actors by external parties. It provides essential knowledge and information needed to strengthen a business's competitive position and increase its future prosperity. This includes market growth, innovation stimulation, and capability enhancement through improved managerial and marketing skills, thereby ensuring that MSMEs contribute more significantly to the national economy.

Innovation Practices

Innovation practices are an organization's ability to succeed in product development, which impacts increased sales, profits, and competitiveness. Innovation starts from an idea and involves the development of new products, processes, or services introduced to the market (Utomo, 2020). According to Chu (2024), innovation is essential for modern businesses seeking to survive in a world marked by competition, technological advancement, and recurring crises. Innovation practices are linked to business survival, with several relevant concepts highlighting this connection.

Business Survival

Business survival is the company's ability to sustain its operations (Widayanto et al., 2020). It represents entrepreneurial characteristics that maximize the efficient use of human resources. It involves strong self-confidence and optimism, task and result orientation, risk-taking, leadership spirit, creativity and innovation, and accountability for business and social issues.

RESEARCH HYPOTHESES AND FRAMEWORK

The Effect of Regeneration on Business Survival

According to Adam & Alarifi (2021), regeneration concerns how well a business learns from past experiences and uses them to ensure long-term survival. Regeneration involves transferring business operations and assets from parents to children willing to continue the business. This process usually happens in family businesses and requires a solid foundation built by the founding generation and a smooth transition to the next generation to ensure business continuity (Harmis, 2020).

Hacdi & Mustamu (2016) found that regeneration has a significant impact on business survival. Similarly, Wayan et al. (2018) also found a positive and significant effect. Hence, the hypothesis is:

H1: Regeneration has a positive and significant effect on Business Survival.

The Effect of External Knowledge on Business Survival

According to Adam & Alarifi (2021), external knowledge includes knowledge and information from being part of a business social network, which helps develop resilience capabilities. External knowledge supports competitive positioning and future prosperity.

Medase & Abdul-Basit (2020) and Ramirez et al. (2018) both found that external knowledge significantly affects business survival. Therefore, the hypothesis is:

H2: External Knowledge has a positive and significant effect on Business Survival.

The Effect of Regeneration on Business Survival through Innovation Practices

Innovation refers to new ideas, practices, or objects considered new by individuals. It includes introducing added value in economic and social areas such as new products, services, production methods, and management systems (Widyawati, 2021). Business regeneration can enhance innovation practices in the next generation, which can in turn support business survival. According to Padilla-Meléndez et al. (2019), innovation practices significantly mediate the effect of regeneration on business survival.

H3: Innovation Practices positively and significantly mediate the effect of Regeneration on Business Survival.

The Effect of External Knowledge on Business Survival through Innovation Practices

Business innovation is not only driven by generational ideas but also influenced by external knowledge gained through government or private sector programs. External knowledge supports innovative ideas that enhance market competitiveness and business sustainability (Anita, 2022). Adolph (2016) and Darsini et al. (2019) found that innovation practices positively mediate the effect of external knowledge on business survival.

H4: Innovation Practices have a positive and significant mediating effect on the relationship between External Knowledge and Business Survival.

METHOD

This study uses a quantitative research method. The sampling technique employed is probability sampling with simple random sampling. This method ensures that every individual in the population has an equal chance of being selected as a sample member.

The measurement scale used is ordinal, using the Likert scale. The population for this research includes 180 cracker MSMEs in Tanggulangin, Sidoarjo Regency. A sample of 65 cracker MSMEs was selected, with respondents being business actors from the Tanggulangin cracker industry. The sampling criteria are:

1. Second and third-generation cracker MSME business owners in Tanggulangin
2. Business owners who have been operating their cracker business for at least 10 years

RESULT

Convergent Validity

The relationship model between variables and indicators in the measurement model for Reflective variables, namely Regeneration, External Knowledge, Innovation Practices, and Business Survival, is based on the outer loading table.

Table 1. Convergent Validity

Outer loadings Matrix	Business Survival (Y)	External Knowledge (X2)	Innovation Practices (Z)	Regeneration (X1)
X1.1				0,545
X1.2				0,592
X1.3				0,759
X2.1		0,688		
X2.2		0,735		
X2.3		0,693		
Y1	0,561			
Y2	0,654			
Y3	0,766			
Z1			0,639	
Z2			0,626	
Z3			0,739	

Source: Processed Primary Data, 2025

Factor Loading is the correlation between an indicator and a variable. If it is greater than 0.5 and/or the p-value is significant, then the indicator is valid and serves as an indicator/measure of the variable.

Based on the outer loading table above, the Loading Factor (e.g., for the Regeneration variable (X1), X1.1 = 0.545; X1.2 = 0.595; X1.3 = 0.759; and so on) is greater than 0.5, thus meeting convergent validity. The analysis results in the table above show that all indicators in the research variables—Regeneration, External Knowledge, Innovation Practices, and Business Survival—have loading factors >0.5, thus meeting convergent validity.

Discriminant Validity

Table 2. Discriminant Validity

Discriminant validity Fornell-Larcker criterion	Business Survival (Y)	External Knowledge (X2)	Innovation Practices (Z)	Regeneration (X1)
Business Survival (Y)	0,695			
External Knowledge (X2)	0,524	0,706		
Innovation Practices (Z)	0,671	0,388	0,677	
Regeneration (X1)	0,619	0,363	0,648	0,638

Source: Processed Primary Data, 2025

If the AVE square root is greater than the correlation of the variable, then the discriminant validity is met. For example, for the Business Survival (Y) variable with 3 indicators (Y1 to Y3) it has an AVE square root of 0.695 which is greater than its correlation value with other variables of 0.524; 0.671; 0.619; etc.; so that the Business Survival (Y) variable meets discriminant validity. Overall, it shows that all research variables, namely Regeneration, External Knowledge, Innovation Practices, and Business Survival, have a AVE square root value greater than their correlation value with other variables, so the discriminant validity is met.

Construct Reliability

Table 3. Construct Reliability

Overview

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Business Survival (Y)	0,741	0,739	0,701	0,644
External Knowledge (X2)	0,736	0,751	0,748	0,698
Innovation Practices (Z)	0,710	0,724	0,719	0,629
Regeneration (X1)	0,726	0,728	0,737	0,611

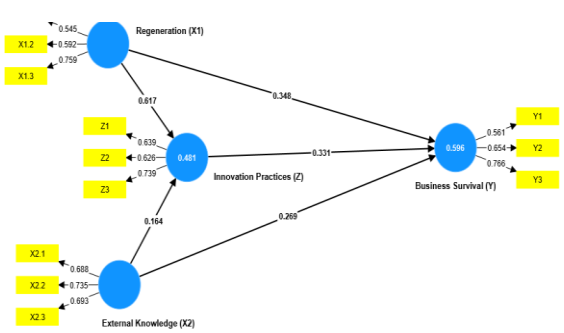
Source: Processed Primary Data, 2025

The next measurement model is the Average Variance Extracted (AVE) value, which indicates the magnitude of the indicator variance contained in the latent variable. Convergence: An AVE value greater than 0.5 also indicates adequate validity for the latent variable. Reflective indicator variables can be seen from the Average Variance Extracted (AVE) value for each construct (variable). A good model is required if the AVE value for each construct is greater than 0.5. Test results indicate that the AVE value for the constructs (variables) Regeneration, External Knowledge, Innovation Practices, and Business Survival is greater than 0.5, thus valid.

Construct reliability is measured by the composite reliability value. A construct is reliable if the composite reliability value is above 0.70, indicating that the indicator is consistent in measuring its latent variable. Test results indicate that the constructs (variables) Regeneration, External Knowledge, Innovation Practices, and Business Survival have composite reliability values greater than 0.7, thus reliable.

Analysis of PLS Results

Figure 2 Outer Model Factor Load Rsquare



Source: Data Processing, SmartPLS Output

From the PLS output image above, we can see the magnitude of the factor loading value for each indicator located above the arrow between the variable and the indicator. We can also see the magnitude of the path coefficients located above the arrow line between the exogenous variable and the endogenous variable. In addition, we can also see the magnitude of the RSquare which is right inside the circle of the endogenous variable.

R-Square

Tabel 3. R-Square

R-square
Overview

	R-square	R-square adjusted
Business Survival (Y)	0,596	0,576
Innovation Practices (Z)	0,481	0,464

Source: Processed Primary Data, 2025

The R2 value (Business Survival) = 0.841. This can be interpreted that the model is able to explain the phenomenon/problem of Business Survival by 59.60%. While the remaining (40.40%) is explained by other variables (besides Regeneration, External Knowledge, and Innovation Practices) that have not been included in the model and error. This means that Business Survival is influenced by Regeneration, External Knowledge, and Innovation Practices by 59.60%, while 40.40% is influenced by variables other than Regeneration, External Knowledge, and Innovation Practices.

Path Coefficient

Direct Influ

Table 4. Direct Influence

Path coefficients
Mean, STDEV, T values, p values

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
Regeneration (X1) -> Business Survival (Y)	0,348	0,338	0,158	2,205	0,028
External Knowledge (X2) -> Business Survival (Y)	0,269	0,272	0,133	2,029	0,043

Source: Processed Primary Data, 2025

H1: Regeneration has a significant positive effect on business survival with a path coefficient of 0.348, where the p-value = 0.028 is smaller than the α value of 0.05 (5%). Hypothesis 1 is accepted.

H2: External knowledge has a significant positive effect on business survival with a path coefficient of 0.269, where the p-value = 0.043 is smaller than the α value of 0.05 (5%).

Hypothesis 2 is accepted

Table 5. Indirect Effects

Specific indirect effects
Mean, STDEV, T values, p values

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics (|O/STDEV|)	P values
External Knowledge (X2) -> Innovation Practices (Z) -> Business Survival (Y)	0,054	0,052	0,049	1,105	0,269
Regeneration (X1) -> Innovation Practices (Z) -> Business Survival (Y)	0,204	0,172	0,100	2,048	0,045

Source: Processed Primary Data, 2025

H3: Regeneration has a significant positive effect on business survival, mediated by innovation practices, with a path coefficient of 0.204, where the p-value is 0.045, which is smaller than the α value of 0.05 (5%). Hypothesis 3 is accepted.

H4: External knowledge has a non-significant effect on business survival, mediated by innovation practices, with a path coefficient of 0.054, where the p-value is 0.269, which is greater than the α value of 0.05 (5%). Hypothesis 4 is rejected.

DISCUSSION

The Effect of Regeneration on Business Survival

The effect of regeneration on business survival in this study shows that the indicator of quality of life influences business survival, as illustrated by statements that entrepreneurial activity promotes better mental health and employment opportunities. In the findings, quality of life has a high loading factor, indicating that respondents expect the succession process in business regeneration to enable faster personal development through learning new things, contributing to decision-making, engaging in production processes, and leading a lifestyle aligned with values such as sustainability, fairness, or innovation.

If MSME actors implement the regeneration process properly, it can create and enhance the survival of MSMEs. This is a crucial step MSME actors must take to continue their businesses without doubting their successors' ability to carry on.

These findings are in line with the research of Hacdi & Mustamu (2020), which emphasizes that business actors need to implement a regeneration process to reduce the risk of business failure. However, the process must be done correctly to ensure continuity. The findings also align with Wayan et al. (2018), who showed that regeneration significantly influences business survival.

The Effect of External Knowledge on Business Survival

This study finds that the knowledge management acquisition process is the strongest factor influencing business survival, as represented by the statement "gaining business insights through discussions with business partners." The act of knowledge sharing with business partners has a high loading factor, indicating that respondents expect improved communication among business partners to develop their business in the future.

Adequate knowledge can enhance strategic thinking in running MSMEs. For example, when MSME actors engage in discussions or product packaging training, they are more likely to develop innovative and attractive packaging. This becomes a crucial step for MSME actors to keep up with digital developments in today's market, ultimately increasing business survival.

This finding is consistent with Medase & Abdul-Basit (2020), who stated that the broader and more mature the external knowledge acquired and applied by business actors, the greater the impact on business survival. It is also supported by Ramirez et al. (2018), who found that external knowledge significantly influences business survival.

The Effect of Regeneration on Business Survival through Innovation Practices

This study shows that the indicator resilience to future changes is the strongest factor, illustrated by the statement "able to adapt to technological changes and the industrial revolution." Innovation practices significantly and positively mediate the influence of regeneration on business survival. This is shown by the fact that stronger innovation practices enhance the realization of regeneration in the succession process of MSME actors.

Regeneration contributes significantly to the development of innovation practices. Previous generations may not have had sufficient experience with creative innovation, but through regeneration, the next generation can apply their ideas and the innovations they've acquired.

This finding is consistent with Padilla-Meléndez et al. (2019), who found that innovation practices partially and simultaneously mediate the effect of regeneration on business survival. This means that renewing a business through regeneration can enhance innovation practices in the next generation, thereby supporting MSME business survival.

The Effect of External Knowledge on Business Survival through Innovation Practices

In this study, the strongest factor is the innovation process, indicated by the statement "often utilizing spare time to plan product innovation and create something new through training provided by the local government." However, innovation practices do not significantly mediate the influence of external knowledge on business survival.

Field data shows that external knowledge, especially training provided by institutions, does not significantly impact innovation practices in MSMEs. This is due to other factors that influence innovation more strongly, such as internal sources (family support) or external sources (advanced technology).

Some respondents agreed that their greatest support in maintaining business survival comes from technological ideas, such as increasingly advanced social media and creative content, rather than institutional training programs.
This result contradicts the findings of Adolph (2016) and Darsini et al. (2019), which claimed that external knowledge can enhance innovation, thus supporting business survival. Instead, this finding aligns with Bambang & Handoko (2020), who stated that innovation practices do not mediate the effect of external knowledge from training on business resilience.

CONCLUSION

Based on the research findings and supported by data analysis, the following conclusions can be drawn:

1. The resilience of cracker MSMEs in Tanggulangin, Sidoarjo Regency, is due to a well-implemented regeneration process carried out by the MSME actors.
2. The survival of cracker MSMEs is also supported by external knowledge in the form of regular training held by local village institutions, which helps MSME actors improve their product sales processes.
3. Business innovation practices emerge as a result of a strong regeneration process and a well-managed leadership succession, which contributes to the resilience of cracker MSMEs in Tanggulangin.
4. Innovation practices derived from external knowledge (e.g., regular training) do not significantly impact the business resilience of cracker MSMEs in Tanggulangin. This is due to the increasing influence of advanced social media platforms and creative content, which provide more impactful ideas than conventional training programs held by local institutions.

REFERENCES

Adam, N. A., & Alarifi, G. (2021). Innovation practices for survival of small and medium enterprises (SMEs) in the COVID-19 times: the role of external support. *Journal of Innovation and Entrepreneurship*, *10*(1). https://doi.org/10.1186/s13731-021-00156-6

Chu, K. M. (2024). Innovation Practices of New Technology Adoption for the Business Survival Strategy of Online Travel Agencies During the COVID-19 Pandemic: Two Case Studies in Taiwan. *Journal of the Knowledge Economy*, *15*(2), 9556–9575. https://doi.org/10.1007/s13132-023-01480-w

Darsini, Fahrurrozi, & Cahyono, E. A. (2019). Pengetahuan ; Artikel Review. *Jurnal Keperawatan*, *12*(1), 97.

Default, P. D., & Keuangan, K. (2021). Pengaruh Debt Default, Kondisi Keuangan, Dan Pertumbuhan Perusahaan Terhadap Opini Audit Going Concern Pada Perusahaan Property Dan Real Estate Yang Terdaftar Di Bursa

Efek Indonesia. *Jurnal Riset Akuntansi Dan Bisnis*, *21*(1), 1–14. https://doi.org/10.30596/jrab.v21i1.6231

Della Nur Shayidah, & Rusnandari Retno Cahyani. (2024). Analisis Faktor-Faktor Yang Mempengaruhi Suksesi Keberhasilan Bisnis Keluarga. *Dinamika Publik: Jurnal Manajemen Dan Administrasi Bisnis*, *2*(2), 33–39. https://doi.org/10.59061/dinamikapublik.v2i2.645

Hadi, F. S., & Mustamu, R. H. (2016). Analisis Proses Suksesi pada Perusahaan Keluarga di Bidang Industri Makanan Ringan. *Agora*, *4*(2), 83–88. https://media.neliti.com/media/publications/53848-ID-analisis-proses-suksesi-pada-pt-patrinsa.pdf

Haniifah, M., & Pramudyastuti, O. (2021). *Jurnal maneksi vol 10, no. 2, bulan desember tahun 2021*. *10*(2), 169–177.

Harmis, A. R. (2020). *Kreativitas pengembangan agrowisata berbasis regenerasi petani guna meningkatkan perekonomian desa. Skripsi. Fakultasn Ekonomi Islam negeri, Purwokerto*.

Ilmiah, J., & Pendidikan, W. (2024). *2* 1,2*. *10*(19), 744–751.

License, A. I., Handayani, W., Irbayuni, S., & Susilowati, L. (2019). *Pendampingan Komunitas Produsen Kecap Skala Rumah Tangga di Kelurahan Putat Jaya Kecamatan Sawahan Kota Surabaya*. *3*(1), 106–112.

Madyatmadja, E. D., Kusumawati, L., Jamil, S. P., Kusumawardhana, W., Informasi, S., & Nusantara, U. B. (2021). Infotech: journal of technology information. *Raden Ario Damar*, *7*(1), 55–62.

Makaroni, K. (2023). *INCREASE THE ATTRACTIVENESS OF MSME*. *3*(3), 305–308.

Medase, S. K., & Abdul-Basit, S. (2020). External knowledge modes and firm-level innovation performance: Empirical evidence from sub-Saharan Africa. *Journal of Innovation and Knowledge*, *5*(2), 81–95. https://doi.org/10.1016/j.jik.2019.08.001

Najib, M., Rahman, A. A. A., & Fahma, F. (2021). Business survival of small and medium-sized restaurants through a crisis: The role of government support and innovation. *Sustainability (Switzerland)*, *13*(19). https://doi.org/10.3390/su131910535

Padilla-Meléndez, A., Dieguez-Soto, J., & Garrido-Moreno, A. (2015). Pesquisa empírica sobre inovação na empresa familiar: Revisão de literatura e proposta de estrutura integrativa. *Revista Brasileira de Gestao de Negocios*, *17*(56), 1064–1089. https://doi.org/10.7819/rbgn.v17i56.1915

Pengabdian, J., & Masyarakat, K. (2023). *1 , 2 1,2*. *1*(3).

Ramirez, F. J., Parra-Requena, G., Ruiz-Ortega, M. J., & Garcia-Villaverde, P. M. (2018). From external information to marketing innovation: the mediating role of product and organizational innovation. *Journal of Business and Industrial Marketing*, *33*(5), 693–705. https://doi.org/10.1108/JBIM-12-2016-0291

Ranitawati, E., Widiarto, H., & Yahya, Y. (2024). Strategi Ketahanan UMKM Menghadapi Kompetitif Bisnis Dalam Melintasi Pasca Pandemi Covid-19 Di Surabaya. *Owner*, *8*(2), 1350–1366. https://doi.org/10.33395/owner.v8i2.1627

Rofiah, C., & Ransimanti Yuvati. (2024). Siklus Hidup Bisnis Keluarga. *Develop*, *8*(1), 14–34. https://doi.org/10.25139/dev.v8i1.7346

Santoso, A. W., Effendy, L., & Krisnawati, E. (2020). Percepatan Regenerasi Petani Pada Komunitas Usahatani Sayuran Di Kecamatan Samarang Kabupaten Garut Provinsi Jawa Barat. *Jurnal Inovasi Penelitian*, *1*(3), 325–336. https://doi.org/10.47492/jip.v1i3.59

Sarwono, A. H., Samdya, D., Selay, A., & Ramadhan, S. (2023). *Sosialisasi dan Pendampingan UMKM Mengenai Strategi Digital Marketing di Desa Musir Lor , Kabupaten Nganjuk*. *3*(3), 41–52.

Simanjuntak, A. (20010). Prinsip-Prinsip Manajemen Bisnis Keluarga (Family Business) Dikaitkan Dengan Kedudukan Mandiri Perseroan Terbatas (PT). *Jurnal Manajemen Dan Kewirausahaan*, *VOL.12*, *NO. 2*, 113–120.

Utomo, H. S. (2020). The Effect of Muslim Religiosity and Innovation Capability on Firm Survival: A Study on Small Enterprises During the Covid-19 Pandemic. *Iqtishadia*, *13*(2), 179. https://doi.org/10.21043/iqtishadia.v13i2.7626

Wayan, N., Darmayanti, D., & Antonio, D. T. (2018). Proses Mentoring Dalam Bisnis Keluarga Budaya Bali. *PERFORMA: Jurnal Manajemen Dan Start-Up Bisnis*, *3*(4).

Yudha, T. S., Soebiantoro, U., Manajemen, P. S., Studi, P., Anyar, G., Anyar, G., Timur, J., & Timur, J. (2024). *Inovasi Produk Herbal Telang Panjare Untuk Peluang Usaha Warga Kelurahan Gunung Anyar*. *5*, 26–35.