DIGITAL CAPABILITY AS A MEDIATING MECHANISM BETWEEN HUMAN CAPITAL, MARKET COMPETITION, AND OPERATIONAL SUSTAINABILITY: EVIDENCE FROM PREMIUM AESTHETIC SERVICES IN INDONESIA

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Abstract

The research focuses on Pinky Treatment, a non-invasive aesthetic service positioned as a premium offering targeting upper–middle market segments with relatively low market awareness, thereby requiring continuous education and promotion through digital capabilities. A quantitative approach was employed using Partial Least Squares–Structural Equation Modeling (PLS-SEM) on data collected from 120 respondents through structured questionnaires. Four latent variables, human capital, market competition, digital capability, and operational sustainability, were analyzed using SmartPLS 4. The results indicate that Human Capital ($\beta = 0.475$; $p < 0.001$) and Market Competition ($\beta = 0.254$; $p = 0.001$) have positive and significant effects on Digital Capability. Furthermore, Digital Capability has a positive and significant effect on Operational Sustainability ($\beta = 0.481$; $p < 0.001$). However, Human Capital ($\beta = 0.134$; $p = 0.131$) and Market Competition ($\beta = 0.100$; $p = 0.164$) do not have significant direct effects on Operational Sustainability. These findings demonstrate that Digital Capability fully mediates the effects of human capital and market competition on operational sustainability. The research model exhibits a moderate explanatory power ($R^2 = 0.356$) and adequate predictive relevance ($Q^2 > 0$). The study concludes that digital capability is a critical factor in translating human resources and competitive market pressures into operational sustainability, particularly for premium services that require continuous market education and consistent promotional efforts. Although Pinky Treatment presents an attractive business opportunity due to its non-invasive nature, ease of licensing, high profit margins, and potential for cost efficiency, its operational sustainability is highly dependent on the ability of business actors to develop and manage digital capabilities. This study is limited to a single type of aesthetic service and a specific sample size; therefore, the generalizability of the findings should be approached with caution.

Keywords: Human Capital, Market Competition, Digital Capability, Operational Sustainability

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INTRODUCTION

The global aesthetic services industry has experienced significant growth over the past five years, alongside increasing public awareness of the importance of skincare, aesthetics, and personal appearance (Grand View Research, 2024). This phenomenon has occurred not only in developed countries but also in developing countries such as Indonesia. Recent reports project that Indonesia's medical aesthetics market will reach USD 495.64 million by 2029, with a compound annual growth rate (CAGR) of 11.56% during 2023–2029 (Research and Markets, 2023). Rising purchasing power, lifestyle changes, and the penetration of social media in Indonesia have driven demand for aesthetic services and beauty products (Basalamah, Umayah, & Wismiarsi, 2025).

The growth of the aesthetic services industry in recent years has been driven by increasing interest in non-invasive procedures, which are perceived as safer, more effective, and associated with minimal recovery time (downtime) compared to invasive procedures. Various global studies indicate that demand for non-surgical aesthetic procedures such as laser rejuvenation, chemical peeling, radiofrequency, and microneedling continues to rise significantly (Triana et al., 2024; Liu et al., 2024). The advantages of these procedures lie in time efficiency, low risk of complications, and natural results that can be tailored to patients' needs (Goldberg et al., 2024).

The increasing number of both medical and non-medical aesthetic services has further facilitated access to beauty treatments. This has contributed to a shift in consumer preferences toward non-invasive and practical services, including chemical peeling treatments, which have been proven to be safe and effective for skin rejuvenation (Bhardwaj et al., 2021). Recent reports predict that the global chemical peeling market will reach USD 2.09 billion in 2024 and is projected to continue growing at a compound annual growth rate (CAGR) of approximately 5.6% through 2030 (Grand View Research, 2024).

In the increasingly intense competition within the aesthetic industry, service innovation has become a key strategy for providers to create sustainable competitive advantage. Such innovation encompasses not only clinical procedures but also business models, distribution methods, and training strategies that enhance value for customers (Singh et al., 2020; Blommerde, 2023). In relation to chemical peeling, one of the recent innovations that integrates product, procedure, and business model is Pinky Treatment.

Pinky Treatment is a melanin-reduction treatment using a serum derived from natural plant compounds and approved by the U.S. Food and Drug Administration (FDA). The customized formula in the Pinky Treatment serum is safe for restoring the natural pink color of the lips and intimate areas, as well as for lightening dark scars and skin folds. The treatment is performed by applying the serum to the targeted area and combining it with photodynamic light therapy. This procedure stimulates natural skin peeling several days later. Patients are provided with an aftercare serum to be applied regularly after the peeling process, with results lasting between three and five years. This treatment generally shows visible results after a single session, depending on the patient's skin tone (ELM Clinic Dermatology Japan, 2024).

From a business perspective, the innovation implemented in Pinky Treatment, based on initial observations, lies in a partnership model built on training and exclusive distribution. Pinky Treatment products and business opportunities are generally accessible only to partners who have completed training, either from certified trainers or directly from the manufacturer. Upon completing the training, partners receive a certificate granting them the

right to provide the service and to act as trainers who can sell training programs to new partners. Participants who obtain certification directly from the manufacturer at a higher cost receive additional rights to distribute the products to all service partners. Consequently, Pinky Treatment not only introduces clinical innovation but also offers a business model with three revenue streams: (1) direct services to patients, (2) opportunities to become product trainers for other aesthetic professionals, and (3) opportunities to become certified distributors. This approach was first applied in developing the Pinky Treatment trend in Malaysia, Hong Kong, and other Asian countries before entering Indonesia in 2024. These initial observations provide context for the innovation implementation mechanism that forms the focus of this study.

In the literature, the approach adopted in the development of Pinky Treatment is known as training-based distribution. This concept emphasizes that access to products and services is not determined solely by commercial transactions but through training and certification mechanisms that function as prerequisites for distribution (Choi & Lee, 2021; Kurniawan, 2023). In other words, training not only serves as a means of enhancing technical competence but also acts as a gateway for business actors to access new revenue streams, expand networks, and gain market legitimacy through official certification. This model has been shown to be effective in creating competitive differentiation, strengthening quality control, and maintaining brand exclusivity, as only certified partners are permitted to deliver services and sell products (Nguyen et al., 2022).

Despite offering promising business opportunities, initial observations indicate variability among aesthetic service professionals who have undergone Pinky Treatment training. While some participants experience significant business growth, others encounter obstacles in implementing the service in practice. Recent literature suggests that service innovations such as the introduction of new treatment protocols that integrate multiple technologies can indeed be a source of competitive advantage if firms possess innovation capabilities and the ability to execute them consistently (Blommerde, 2023; Tajeddini et al., 2024). However, the successful adoption and sustainability of such service innovations are not automatic. Various barriers, including value barriers (perceived benefits versus costs), risk barriers, and limitations in human resources and financing, often hinder sustainable practice after training. These conditions help explain why some training alumni quickly commercialize the innovation, while others discontinue its implementation (Kumari et al., 2024).

Furthermore, studies on innovation sustainability in healthcare services emphasize that long-term sustainability depends more on a combination of factors organizational support (management and culture), relationships among implementers, and funding models or financial feasibility rather than solely on initial technology acceptance. In other words, early adoption without strong supporting structures tends to result in temporary adopters (Krelle et al., 2023; Al-Anezi, 2024). From an academic perspective, this condition reveals a research gap. Many previous studies have focused on the clinical aspects of aesthetic procedures or patient satisfaction, while quantitative research on the sustainable competitive advantage of service providers in implementing new innovations acquired through training remains limited. Yet, this aspect is crucial for understanding implications related to service portfolio expansion, positioning strategy, strengthening inter-business partnerships, and developing new revenue models (Hoppman et al., 2025; Leasiwal et al., 2025). Therefore,

this study aims to analyze the determinants of operational sustainability within the concept of sustainable competitive advantage, particularly the roles of human capital and digital capability as internal factors, and market competition as an external factor, in the implementation of the chemical peeling aesthetic service innovation "Pinky Treatment" after training in Indonesia.

RESEARCH METHOD

This study focuses on beauty service providers (aesthetic clinics and studios) in Indonesia that act as partners or users of the chemical peeling service innovation Pinky Treatment as the research object and unit of analysis. The research population comprises all medical and non-medical aesthetic professionals who have participated in official Pinky Treatment training and have implemented the service, with the total population size not precisely known. The sample was determined using purposive sampling based on specific criteria and consisted of 120 respondents, in line with recommendations for PLS-SEM analysis. Data were collected through a structured questionnaire using a five-point Likert scale, distributed online to respondents during the period August–December 2025, with the main variables including human capital, market competition, digital capability, and operational sustainability. Data analysis was conducted using PLS-SEM with SmartPLS, as this method is suitable for complex models, moderate sample sizes, and aims to test causal relationships and predictive capability among variables in the context of training-based aesthetic service innovation.

RESULT AND DISCUSSION

Outer Model

The measurement model is used to evaluate the relationship between latent constructs and their measurement indicators. The evaluation of the outer model aims to assess the validity and reliability of indicators through their outer loading values.

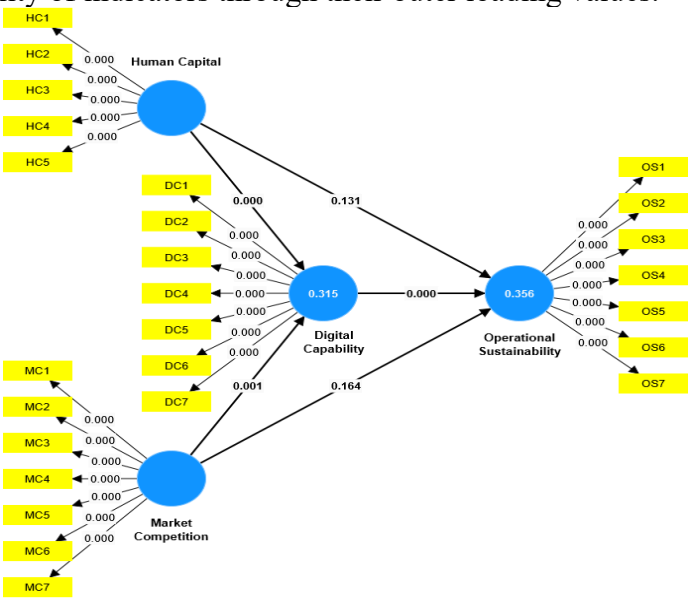

Figure 1.
Path Coefficient 1

Figure 1 above presents the results of the structural path significance test based on p-values obtained from the bootstrapping procedure.

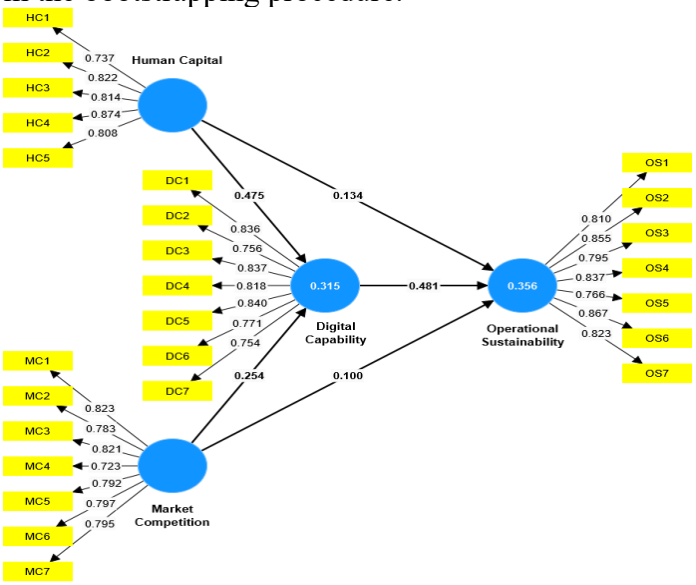

Figure 2.
Path Coefficient 2

Figure 2 presents the estimation results of the measurement model in this study, showing the outer loading values of each indicator on its respective construct. All indicators for the constructs Human Capital, Market Competition, Digital Capability, and Operational Sustainability exhibit outer loading values above the minimum threshold of 0.70. Therefore, it can be concluded that all indicators meet the criteria for convergent validity.

HTMT (Heterotrait–Monotrait)

The HTMT method is recommended as a more reliable approach than traditional criteria such as cross loadings and the Fornell–Larcker criterion for evaluating discriminant validity in reflective measurement models. According to Hair et al. (2021) and Henseler et al. (2015), HTMT values should be below 0.90 to ensure that two distinct constructs exhibit sufficient empirical distinctiveness.

Table 1.
HTMT (Heterotrait–Monotrait)

Variable	Human Capital	Market Competition	Digital Capability	Operational Sustainability
Human Capital				
Market Competition	0,128			
Digital Capability	0,534	0,324		
Operational Sustainability	0,522	0,331	0,622	

Based on Table 1 above, all HTMT values are below 0.90, indicating that all constructs meet the requirements for discriminant validity according to the Heterotrait–Monotrait (HTMT) criterion.

Collinearity Assessment

Variance Inflation Factor (VIF) values below 5.0 indicate that the model is free from excessive multicollinearity, allowing the path coefficient estimates to be interpreted reliably.

Table 2.
Collinearity Assessment

	VIF
HC1	1,785
HC2	2,032
HC3	2,125
HC4	2,197
HC5	2,001
MC1	2,451
MC2	2,060
MC3	2,473
MC4	1,569
MC5	2,351
MC6	2,241
MC7	2,159
OS1	2,229
OS2	2,800
OS3	2,322
OS4	2,568
OS5	2,049
OS6	3,024
OS7	2,383
DC1	2,531
DC2	1,869
DC3	2,585
DC4	2,355
DC5	2,654
DC6	1,903
DC7	2,531

Source: Research data processed using SmartPLS 4.0.9.9 software, 2025.

Based on the results above, the VIF values for all variables indicate no multicollinearity issues, as all values are below 5.0.

Inner Model

Coefficient of Determination

The coefficient of determination is used to measure predictive accuracy. In general, an R^2 value of 0.75 indicates substantial predictive accuracy, 0.50 indicates moderate accuracy, and 0.25 indicates weak predictive accuracy (Hair et al., 2021).

Table 3.
Coefficient of Determination

	R-square	R-square adjusted
Digital Capability	0,315	0,303
Operational Sustainability	0,356	0,340

Source: Data processed using SmartPLS 4.0.9.9 software, 2025.

Based on the analysis results, the Digital Capability construct has an R-square value of 0.315 and an adjusted R-square value of 0.303, indicating that Human Capital (X1) and Market Competition (X2) explain 31.5% of the variance in Digital Capability (Z). Meanwhile, the Operational Sustainability (Y) construct has an R-square value of 0.356 and an adjusted R-square value of 0.340, meaning that Digital Capability (Z), Human Capital (X1), and Market Competition (X2) jointly explain 35.6% of the variance in Operational Sustainability (Y). Referring to the criteria of Hair et al. (2021), these R-square values can be categorized as moderate, indicating that the structural model has adequate explanatory power for the endogenous variables.

Predictive Relevance

The Q^2 value is obtained using the blindfolding procedure. As a relative measure of predictive relevance, values of 0.02 indicate small predictive relevance, 0.15 indicate moderate predictive relevance, and 0.35 indicate large predictive relevance (Hair et al., 2021).

Table 4.
Predictive Relevance

	SSO	SSE	Q^2 (=1-SSE/SSO)	Interpretation
Human Capability	-	-	-	Exogenous variables
Market Competition	-	-	-	Exogenous variables
Operational Sustainability	840.000	648.480	0,228	Moderate predictive relevance
Digital Capability	840.000	676.200	0,195	Moderate predictive relevance

Source: Data processed using SmartPLS 4.0.9.9 software, 2025.

Based on the data above, the following information can be derived:

1. Human Capital and Market Competition do not have SSO, SSE, or Q^2 values because they function as exogenous variables and are therefore not included in the blindfolding procedure for predictive relevance testing.
2. Operational Sustainability has a Q^2 value of 0.228, indicating that the research model has moderate predictive capability in explaining variations in operational sustainability.

3. Digital Capability has a Q^2 value of 0.195, indicating that the structural model has moderate predictive relevance for the digital capability variable.

Hypothesis Testing

Path coefficient analysis in the structural model is used to test the research hypotheses by examining the effects among latent variables. Significance testing is based on t-statistics and p-values obtained from the bootstrapping procedure. A relationship is considered significant if the t-statistics value exceeds 1.96 or the p-value is less than 0.05 (Hair et al., 2021).

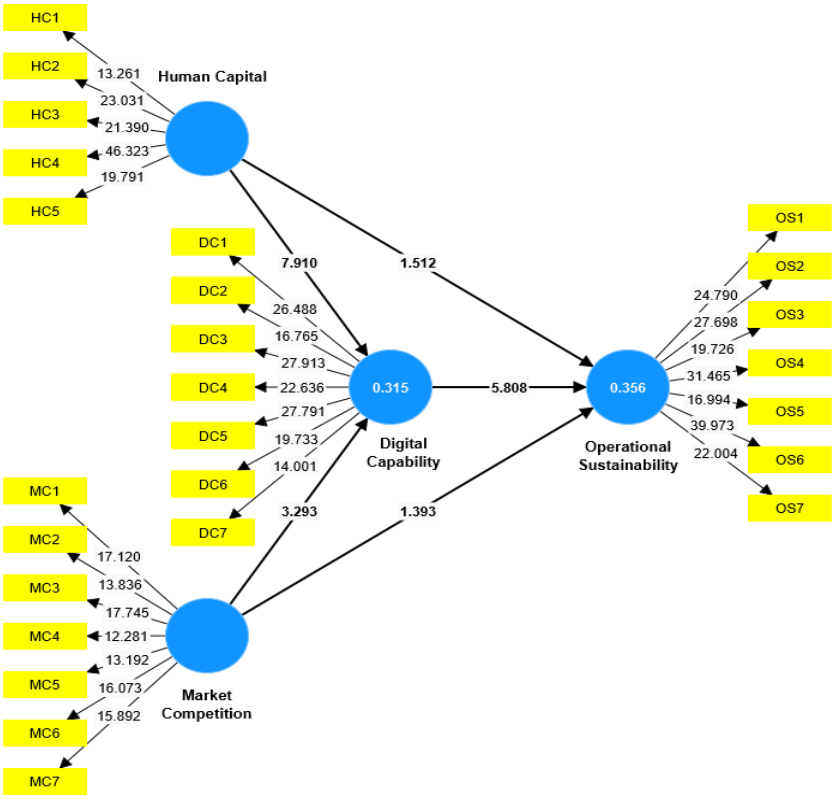

Figure 3.
Results of the Structural Model Bootstrapping Test

Based on Figure 3, the test results indicate that Human Capital and Market Competition have significant effects on Digital Capability, and Digital Capability has a significant effect on Operational Sustainability. Conversely, Human Capital and Market Competition do not have a significant direct effect on Operational Sustainability, as their respective t-statistics values are below 1.96.

Direct Effect Hypothesis Testing

Table 5.
Direct Hypothesis Testing

	Original Sample (O)	Sample Mean (M)	T Statistics (|O/STDEV|)	P Values	Description
Human capital towards digital capability	0,475	0,481	7,910	0,000	**H1 Accepted**

Market competition on digital capability	0,254	0,266	3,293	0,001	**H2 Accepted**
Human capital on operational sustainability	0,134	0,136	1,512	0,131	**H3 Rejected**
Market competition on operational sustainability	0,100	0,107	1,393	0,164	**H4 Rejected**
Digital capability for operational sustainability	0,481	0,485	5,808	0,000	**H5 Accepted**

Source: Research data processed using SmartPLS 4.0.9.9 software, 2025.

Based on the table above, the results of data analysis using SmartPLS in this study show the following:

1. Human Capital has a positive and significant effect on Digital Capability, as indicated by an Original Sample (O) value of 0.475, a t-statistics value of 7.910 (> 1.96), and a p-value of 0.000 (< 0.05). Therefore, the first hypothesis (H1) is accepted, indicating that improvements in human capital enhance digital capability.
2. Market Competition has a positive and significant effect on Digital Capability, as shown by an Original Sample (O) value of 0.254, a t-statistics value of 3.293 (> 1.96), and a p-value of 0.001 (< 0.05). Thus, the second hypothesis (H2) is accepted, indicating that market competition drives the enhancement of digital capability.
3. Human Capital does not have a significant effect on Operational Sustainability, as indicated by an Original Sample (O) value of 0.134, a t-statistics value of 1.512 (< 1.96), and a p-value of 0.131 (> 0.05). Therefore, the third hypothesis (H3) is rejected, indicating that human capital does not directly affect operational sustainability.
4. Market Competition does not have a significant effect on Operational Sustainability, as evidenced by an Original Sample (O) value of 0.100, a t-statistics value of 1.393 (< 1.96), and a p-value of 0.164 (> 0.05). Accordingly, the fourth hypothesis (H4) is rejected, indicating that market competition does not have a direct effect on operational sustainability.
5. Digital Capability has a positive and significant effect on Operational Sustainability, as shown by an Original Sample (O) value of 0.481, a t-statistics value of 5.808 (> 1.96), and a p-value of 0.000 (< 0.05). Thus, the fifth hypothesis (H5) is accepted, confirming that digital capability plays a crucial role in enhancing operational sustainability.

Indirect Effect Hypothesis Testing

Table 6.
Indirect Hypothesis Testing

	Original Sample (O)	Sample Mean (M)	T Statistics (|O/STDEV|)	P Values	Description
Human capital's impact on operational sustainability is mediated by digital capability.	0,229	0,233	4,472	0,000	**H6 Accepted**
Market competition's impact on operational sustainability	0,122	0,128	3,022	0,003	**H7 Accepted**

is mediated by digital capability.

Source: Research data processed using SmartPLS 4.0.9.9 software, 2025.

Based on the table above, the results of the indirect effect analysis in this study are as follows:

1. Digital Capability mediates the effect of Human Capital on Operational Sustainability. Although Human Capital does not have a significant direct effect on Operational Sustainability, it significantly affects Digital Capability, and Digital Capability significantly affects Operational Sustainability. This indicates that the effect of Human Capital on operational sustainability is indirect through Digital Capability; therefore, the sixth hypothesis (H6) is accepted.
2. Digital Capability mediates the effect of Market Competition on Operational Sustainability. Market Competition significantly affects Digital Capability, and Digital Capability significantly affects Operational Sustainability, while Market Competition does not have a significant direct effect on Operational Sustainability. Thus, the effect of Market Competition on operational sustainability occurs through Digital Capability, and the seventh hypothesis (H7) is accepted.

Overall, these findings confirm that Digital Capability serves as a key mediator that bridges the influence of Human Capital and Market Competition on Operational Sustainability.

CONCLUSION

Based on the results of data analysis using the SEM-PLS method in the context of premium aesthetic services specifically the Pinky Treatment chemical peeling several key conclusions can be drawn as follows:

1. Human Capital has a positive and significant effect on Digital Capability. This indicates that improvements in competencies, training, and human resource capacity encourage the development of digital capabilities, such as managing reservation systems, CRM, and leveraging customer data in operational activities and aesthetic service promotions.
2. Market Competition has a positive and significant effect on Digital Capability. Competitive market pressure drives business actors to adopt and strengthen digital capabilities as a strategic response to the dynamics of the beauty service industry.
3. Human Capital does not have a direct effect on Operational Sustainability. This finding indicates that human resource competencies are not yet able to directly enhance operational sustainability without effective conversion mechanisms.
4. Market Competition does not have a direct effect on Operational Sustainability. Market competition does not automatically improve operational sustainability in the context of segmented premium services and may even undermine sustainability if not balanced with appropriate strategies.
5. Digital Capability has a positive and significant effect on Operational Sustainability. Digital capability plays a crucial role in improving operational efficiency, service consistency, and customer relationship management that support business sustainability.
6. Digital Capability acts as a full mediator in the relationship between Human Capital and Operational Sustainability, as well as between Market Competition and Operational

Sustainability. This indicates that the influence of Human Capital and Market Competition on operational sustainability can only occur through the strengthening of digital capability.

7. In the context of Pinky Treatment premium aesthetic services, Digital Capability is a key factor that functions as a conversion bridge between internal capacity and external pressure toward operational sustainability. Without strong digital capabilities, human resource advantages and market competition dynamics are not yet able to optimally generate business sustainability.

REFERENCES

Book:

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate data analysis* (7th ed., hlm. 110–112). Upper Saddle River, NJ: Prentice Hall.

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2021). *A primer on partial least squares structural equation modeling (PLS-SEM)* (3rd ed.). SAGE Publications.

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2021). *Partial least squares structural equation modeling (PLS-SEM) using SmartPLS: A practical guide* (3rd ed., hlm. 45–47). Cham: Springer.

Journal:

Al-Anezi, A. (2024). Organizational enablers of healthcare innovation sustainability: Lessons from digital transformation in aesthetic clinics. *Health Services Management Research, 37(1),* 45–59.

Basalamah, R. A. M., Umayah, A., & Wismiarsi, T. (2025). Purchase intentions of Indonesian beauty products. *Jurnal Ekonomi, Manajemen, dan Akuntansi (JEM SI), 11(1),* 619–629.

Blommerde, T. (2023). Service innovation capability: A systematic literature review and research agenda. *Service Industries Journal, 43(15–16),* 1197–1227.

Blommerde, T. (2023). Service innovation in aesthetic industries: Integrating technology and experience for competitive differentiation. *International Journal of Service Management, 34(2),* 201–218.

Choi, J., & Lee, H. (2021). Training-based distribution model for innovation-driven service ecosystems. *Journal of Business Research, 134,* 425–436.

Choi, S., & Lee, J. (2021). Knowledge transfer mechanisms and distribution performance in training-based supply networks. *Industrial Marketing Management, 93,* 137–149.

Goldberg, D. J., Andriessen, A., Gold, M., Lolis, M. S., Marchbein, S., Nestor, M. S., & Ros, A. (2024). A review of nonsurgical facial rejuvenation and the role of oxymetazoline hydrochloride ophthalmic solution, 0.1% in periorbital revitalization. *Journal of Cosmetic Dermatology, 23(4),* 1122–1130.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115-135.

Hoppman, J., Müller, T., & Schaltegger, S. (2025). Strategic sustainability in service innovation: Toward a dynamic capability framework for competitive advantage. *Journal of Cleaner Production, 435,* 139281.

Krelle, H., Wenzel, L., & Hughes, L. (2023). Sustaining innovation in healthcare: The role of organizational support and interprofessional collaboration. *BMJ Innovations, 9(3),* 179–186.

Kumari, S., Rahman, M., & Singh, R. (2024). Barriers to sustainable adoption of service innovation in small aesthetic enterprises: Evidence from Asia. *Service Industries Journal, 44(1–2),* 65–83.

Kurniawan, A. (2023). Pelatihan berbasis distribusi dalam pengembangan jaringan kemitraan estetika di Asia Tenggara. *Jurnal Manajemen dan Kewirausahaan, 25(2),* 110–122.

Leasiwal, E. R., & Randa, F. (2023). Pengaruh green human resource management terhadap kinerja karyawan dengan komitmen organisasi sebagai variabel mediasi. *Jurnal Ilmu Manajemen, 11(2),* 150–162.

Liu, Y., Mao, R., Xiao, M., Zhu, W., Liu, Y., & Xiao, H. (2024). *Facial rejuvenation: A global trend of dermatological procedures in the last decade. Plastic and Reconstructive Surgery,12(6),* e5801.

Nguyen, Q. T., & Huynh, T. P. (2024). The mediating role of digital transformation in the relationship between human capital and firm performance. *Asia-Pacific Journal of Business Administration, 16(3),* 287–305.

Singh, S., Akbani, I., & Dhir, S. (2020). *Service innovation implementation: A systematic review and research agenda.* The Service Industries Journal, 40(7–8), 491–517.

Tajeddini, K., den Hertog, P., & Altinay, L. (2024). *Capabilities for service innovation: A strategic approach to competitiveness in wellness and beauty sectors*. *Journal of Business Research, 172*, 114091.

Triana, L., Palacios Huatuco, R. M., Campilgio, G., & Liscano, E. (2024). *Trends in surgical and nonsurgical aesthetic procedures: A 14-year analysis of the International Society of Aesthetic Plastic Surgery (ISAPS)*

Website:

Cosmetic Dermatology Elm Clinic. (2024). Roma Pink: Return your skin to its original white and pink color with just one treatment. Diakses pada 15 September 2025 dari https://www.elm-clinic.jp/en/treatment/romapink/.

Grand View Research. (2024). Aesthetic injectable market size, share & trends analysis report, 2024-2030. Diakses pada 25 September 2025 dari https://www.grandviewresearch.com/industry-analysis/aesthetic-injectable-market-report.

Grand View Research. (2024). Medical aesthetics market size, share & trends analysis report 2024–2030. Diakses pada 30 September 2025 dari https://www.grandviewresearch.com/.

Research and Markets. (2024, November 6). Indonesia medical aesthetics market report 2024-2029 – 11.5% CAGR forecast, with market set to reach USD 495.64 million by 2029. Diakses pada 5 Oktober 2025 dari https://www.globenewswire.com/news-release/2024/11/06/2975522/28124/en/Indonesia-Medical-Aesthetics-Market-Report-2024-2029-11-5-CAGR-Forecast-with-Market-Set-to-Reach-USD-495-64-Million-by-2029.html.