



Analysis of Product-Service Systems in Micro Small and Medium Enterprises (MSMEs) for Sales Sustainability

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Abstract

The purpose of this study is to analyze the ability of MSMEs to implement PSS and provide recommendations to MSMEs in terms of strategies for utilizing PSS in MSMEs. This research was conducted on four MSMEs, two in the South Jakarta area and two in the Depok area. The data collection technique used a questionnaire. The type of research method used in this research is descriptive-qualitative analysis. The data analysis method was carried out using the PSS Matrix analysis method by inputting the results of the questionnaire data. The results of this study indicate that MSME A qualifies for the use-oriented category, MSME B qualifies for the product-oriented and use-oriented categories, MSME C qualifies for the product-oriented and use-oriented categories, and MSME D qualifies for the use-oriented and result-oriented categories.

Keywords: MSMEs, product-service systems, PSS matrix, sales sustainability

Introduction

In today's dynamic business environment, MSMEs in Indonesia record an important role in driving economic growth, it can be seen based on data from the National Central Statistics Agency (BPS) in 2014 there were around 58.3 million MSMEs which continue to grow every year (Juanda et al., 2023). However, on the growth side, MSMEs only assess the business without seeing the elements that are in it (Islami et al., 2017). The element relates to the sustainability of sales sustainability which can be a major problem for MSMEs in maintaining sales efforts. To overcome this problem, a breakthrough can be given with the concept of Product-Service Systems (PSS) innovation that can provide strategic solutions for MSMEs.

The advantage of the PSS concept is that it allows for a more sustainable system because the goal of PSS is to integrate the environment with social and economic aspects (Apsari et al., 2015). PSS can help MSMEs increase their productivity, reduce costs, and gain new markets. However, a comprehensive analysis of PSS in the context of MSMEs is needed to understand its effectiveness and potential barriers.

In this journal, the purpose of this study is to analyze the ability of MSMEs to implement PSS and provide recommendations to MSMEs in terms of strategies for utilizing PSS in MSMEs. By being based on which group or standing in what field, PSS can provide successful innovation at the end of the potential owned to be utilized or developed by MSMEs.

This research contributes to the development of literature regarding the development of PSS, this research provides a comprehensive analysis of PSS in terms of MSMEs, and this research provides an overview of the conditions of MSMEs before the implementation of PSS to provide knowledge of the importance of innovating for the sustainability of MSME sales. From a practical perspective, this research provides insight into understanding the challenges and benefits of PSS on sales sustainability for MSME business owners.

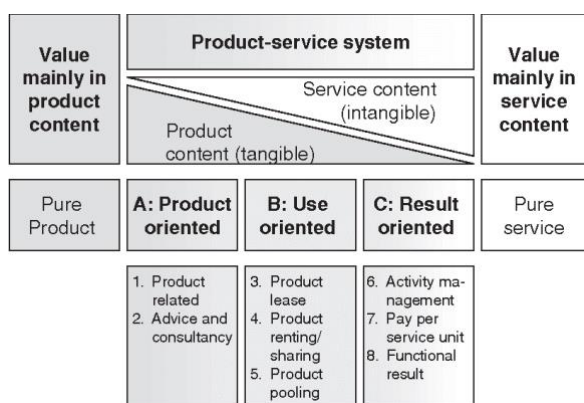
Previous research conducted by Bhamra et al. (2018) which discusses PSS in sustainability design in SMEs, explains that sustainability is no longer an optional facet of production, concrete actions are needed from every actor in society to achieve more efficient, responsible, and innovative ways of producing, consuming, and living. The research is on SMEs, which focus more on small businesses and is domiciled in Colombia. Therefore, the researcher is interested in analyzing MSMEs in Indonesia with the result that it can provide input for the sustainability of sales in MSMEs.

Literature Review and Hypotheses

Product-Service Systems

Products and services that include the network and infrastructure required to manufacture products and services are referred to as Product-Service Systems (PSS) (Tukker & Tischner, 2006). PSS highlights the transition from selling tangible goods to providing a mix of value-added goods and services. PSS wants to boost client happiness, promote sustainability, and open up fresh revenue opportunities for the business. Through the integration of products and services, the Product Service System (PSS) as a business model offers a great deal of potential to answer customer needs and offer solutions for the industry (Afiatna et al., 2017). PSS is a business model that has been described in much literature as supporting sustainability (Annarelli et al., 2016). Strong relationships between buyers and users in PSS makes remanufacturing more profitable (Östlin et al., 2008). Various forms of PSS can be utilised by remanufacturing companies to manage their cores supplies (Priyono, 2017).

Instead of being presented with items, customers learn how to fulfill all of their needs and desires through services that are offered with the proper PSS design. According to Tukker (2004), PSS is classified into three primary types. The first is product-oriented, where Customers will purchase a product and receive additional services in addition to complete ownership of the purchased item. Second, use-oriented products are those that the corporation fully owns and sells through a system of leasing, sharing, or renting rather than selling them to customers directly. Third, result-oriented, where the business provides a range of services that customers can obtain with the aid of the items they already own.



Source: (Tukker, 2004)

Figure 1. Product-Service System Category (PSS)

MSMEs

According to asset and turnover requirements, MSMEs constitute one category of business (Muttaqien et al., 2022). MSMEs are companies owned and operated by people, families, or other small business entities (Farisi et al., 2022). MSMEs have a significant impact on society as a whole, particularly when it comes to empowering those who don't even have work (Damayanti et al., 2023). The existence of MSMEs is crucial in terms of the number of enterprises and the number of jobs they produce. MSMEs in Indonesia are highly regarded since they provide a significant contribution to the country's economic growth (Khoiruddin, 2023). The features of micro, small, and medium-sized businesses can be inferred from the Law of the Republic of Indonesia Number 20 of 2008 on MSME is the nature of the company's products is subject to change at any time and is not always fixed, the location of the business is subject to change and is not always permanent, not even basic accounting practices such as keeping family and business finances separate, there is insufficient entrepreneurial spirit among human resources (entrepreneurs), the average educational attainment is comparatively extremely low, they typically lack access to banking, however some are able to use non-bank financial institutions, and usually don't have any legality or business license requirements (Maulana et al., 2021).

Sales Sustainability

As a complex notion, sales sustainability is becoming increasingly recognized in today's business environment. It examines the complex relationship between commercial activities and the environmental, social and economic aspects of sales sustainability. It is based on the larger paradigm of sustainable development, one aspect of which is sales sustainability, which focuses on the integration of green practices in the sales process, to reduce the environmental impact of commercial activities (Gabler et al., 2023). A key aspect of sales sustainability is its impact on financial performance with sustainable sales strategies having an impact on financial performance. However, research suggests that the introduction of new sustainable products may result in lower sales than conventional products (Van Doorn et al., 2021). In addition, considerations of ethics, transparency, and stakeholder engagement show that a growing body of literature emphasizing the important role of the factors of trust, commitment, satisfaction, mutual control, and dialogue (Kent & Taylor, 2002). Transparency is a prerequisite for restoring commitment and trust in relationships when there is a lack of trust or a state of distrust between the organization and its stakeholders (Jahansoozi, 2006).

PSS Matrix

As a conceptual framework, the Product-Service System (PSS) Matrix has become an important tool for sustainable business models and circular economy practices. The PSS Matrix, which is based on the notion of moving away from conventional product-centric models and toward more comprehensive service-oriented approaches, has drawn more attention in both academic and professional literature. Researchers have looked into its use in a variety of industries, showing how it can improve customer satisfaction, encourage resource efficiency, and lessen environmental impact. Typically, the matrix divides offerings into two categories, tangible goods and intangible services, this results in a spectrum of business models that range from product-dominant to service-dominant (Ericson et al., 2009). Additionally, the literature reflects on the challenges and opportunities associated with the implementation of PSS, including issues of collaboration, value co-creation, and the need for systemic thinking (Lim et al., 2012). The PSS Matrix is a useful framework that helps businesses evolve their business models towards a more environmentally conscious and service-centric paradigm, as more and more businesses realize how important it is to switch to more sustainable practices.

Hypotheses

Will show a preference for moving toward Product-Service Systems (PSS) that combine pay-per-service, product-related services, and functional outcomes. This suggests that MSMEs are beginning to realize the advantages of incorporating service-oriented strategies into their business models.

H1: MSMEs in Indonesia, particularly those engaged in the sale of tangible products (pure products)

MSMEs that prioritize tangible product offers, for example, might be more likely to fall into the use-oriented category, whereas service providers might be eligible for both the use-oriented and result-oriented categories. This implies that MSMEs can, depending on their focus and stage of development, make the switch to more sustainable business models.

H2: The eligibility assessment of MSMEs to implement PSS

Draw attention to deficiencies in their financial and human resource capacities, notably in the use-oriented and result-oriented categories. This suggests that in order to improve MSMEs proficiency in these areas and encourage a more widespread adoption of sustainable business practices, focused support and development initiatives may be required.

H3: MSMEs readiness and eligibility for PSS implementation

Research Method

This research was conducted on 4 MSMEs, with details on 2 MSMEs located in the South Jakarta area and the remaining 2 MSMEs located in the Depok area. The type of research method used in this research is descriptive-qualitative research analysis. Qualitative research is research that deals with the ideas, perceptions, opinions, or beliefs of the people studied, which cannot be measured by numbers (Oey & Alamsyah, 2022). The data collection technique uses a questionnaire. The type of question on the questionnaire is a closed question, which limits the answer options that respondents will choose where the answers to the questionnaire are already available (Wulandari & Purwanta, 2020). For example, does your institution offer products in the form of goods or services only (no combination)? with yes or no answers. The data analysis method is carried out using the PSS Matrix analysis method by inputting the results of the questionnaire data.

The input results will be visualized in the following quadrants, which consist of 3 parts, namely existing, desire, and eligible.

Table 1. Existing Quadrant

EXISTING				
PURE PRODUCT	PRODUCT SERVICE SYSTEM			PURE SERVICE
	Product Related Service	Use Oriented	Result Oriented	
Customer Ownership	Product Related Service	Product Lease	Outsourcing	Service Providing
	Advice & Consulting	Product Renting/Sharing	Pay Per Service Unit	
	Product Related Software	Product Pooling	Functional Result	

Table 2. Desire Quadrant

DESIRE			
PRODUCT SERVICE SYSTEM			
Product Oriented	Use Oriented	Result Oriented	
Product Related Service	Product Lease	Outsourcing	
Advice & Consulting	Product Renting/Sharing	Pay Per Service Unit	
Product Related Software	Product Pooling	Functional Result	

Table 3. Eligible Quadrant

ELIGIBLE		
PRODUCT SERVICE SYSTEM		
Product Oriented	Use Oriented	Result Oriented
Product Related Service	Product Lease	Outsourcing
Advice & Consulting	Product Renting/Sharing	Pay Per Service Unit
Product Related Software	Product Pooling	Functional Result

Results and Discussion

Based on the data that has been obtained, the following are the results.

Table 4. Data on the Existence and Desire of MSMEs

MSMEs	Existing Quadrant	Desire		
		PO	UO	RO
A	Quadrant 1	Quadrant 2	Quadrant 7	Quadrant 10
B	Quadrant 1	Quadrant 2	Quadrant 6	Quadrant 10
C	Quadrant 1	Quadrant 2	Quadrant 6	Quadrant 10
D	Quadrant 11	Quadrant 2	Quadrant 6	Quadrant 9

MSMEs A is an MSMEs engaged in the sale of coconut ice, MSMEs B and C are MSMEs engaged in food stalls, and MSMEs D is an MSMEs engaged in the laundry of clothes. Based on Table 4, it can be seen that MSMEs A, B, and C, based on the reality of their establishments, are MSMEs classified as pure products, namely MSMEs that only sell or offer their products. Meanwhile, MSMEs D, based on the fact of its establishment, is an MSMEs that is included in pure service, which offers or sells only in terms of its services.

In the wishes or expectations section related to the 3 PSS categories, first in the product-oriented category, MSMEs A, B, C, and D want their MSMEs to be product-related services, that is, in addition to offering their products, sellers also want to offer services that are relevant to the sustainability of supporting the life needs of their products. Second, in the use-oriented category, MSMEs A wants its MSMEs to be product pooling, where the product remains the property of the supplier, but different users use it simultaneously, while MSMEs B, C, and D want their MSMEs to be product renting or sharing, where the product remains the property of the supplier, but different users can use it alternately, not simultaneously. Third, in the result-oriented category, MSMEs A, B, and C want their MSMEs to be functional results, which refer to the results or benefits that customers want to achieve through product use, while MSMEs D want their MSMEs to be pay-per-service units, where customers pay based on the use of certain services, not buying the product as a whole.

Table 5. MSMEs Eligibility Data

MSMEs	Eligible		
	PO	UO	RO
A		Quadrant 7	
B	Quadrant 3	Quadrant 7	
C	Quadrant 3	Quadrant 7	
D		Quadrant 7	Quadrant 8, 9, 10

After the data is processed with the PSS Matrix, the eligibility or indication of the ability or potential of MSMEs towards their desire to implement PSS (Product Service Systems) is found in Table 5. MSME A is eligible in the use-oriented category, which means that MSME A has the necessary capabilities and resources to operate an MSME that involves product pooling. Product pooling usually refers to the practice of combining resources or products from

multiple sources to create a collective offering or solution. MSME B is eligible in the product-oriented and use-oriented categories, namely advice and consulting and use-oriented, where MSME B shows that it has the potential to engage in various types of activities. In particular, MSME B can provide advice, consulting, and practical use-oriented services such as the use of e-commerce in its sales. The product-oriented category shows that MSME B can develop and offer real products to its customers.

Then, MSME C, like MSME B, is eligible in the product-oriented and use-oriented categories, namely advice and consulting and use-oriented, which can provide advice, consultation, and use-oriented services, as well as develop tangible products. Furthermore, MSME D is eligible for use-oriented and result-oriented, namely product pooling, outsourcing, pay-per-service unit, and functional result, which indicate that MSME D can provide services that focus on practical use and achieving certain results, such services include product pooling, which involves combining resources or products from different sources, outsourcing refers to delegating tasks or processes to external entities, pay-per-service unit, which indicates charging based on specific service units, and functional result emphasizes providing desired results.

Based on Table 5, it can be seen that there are empty columns in these three categories. In the use-oriented category, this indicates that MSMEs are not yet financially and human resource-competent to implement and develop, and offer tangible products in PSS. In the outcome-oriented category, this implies that MSMEs may not have demonstrated proficiency in delivering services aimed at achieving specific outcomes. This may indicate a lack of focus on delivering measurable outcomes or an absence of specialization in outcome-based services. However, the progression to achieving sustainable sales can start at an eligible stage in each category until it reaches the whole category.

Delivering measurable results that support their customers goals should be a top priority for businesses looking to increase their sales over time. This requires a thorough understanding of customer needs and personalized service delivery methods. MSMEs that focus on providing outcome-based services have an advantage in this regard, as they have become experts in achieving specific outcomes and can provide evidence of past success. MSMEs can build trust with customers and long-term relationships that result in repeat and referral business by concentrating on measurable outcomes. Providing value to customers by helping them achieve their desired outcomes is ultimately the key to achieving sustainable sales. This requires a dedication to continuous learning and development and a readiness to change.

Conclusion

Based on the results and discussion, MSMEs D are pure services, whereas MSMEs A, B, and C are pure products. MSMEs A, B, and C want their MSMEs to be pay-per-service businesses, product-related services, product pooling, product renting/sharing, and functional results. The Product Service Systems (PSS) Matrix identifies MSMEs that are qualified to deploy PSS. MSME A is qualified for the use-oriented category, MSME B is qualified for the product-oriented and use-oriented, MSME C is same as MSME B is qualified for the product-oriented and use-oriented, MSME D is qualified use-oriented and result-oriented categories. However, the use-oriented and outcome-oriented categories include empty columns, indicating that MSMEs might not. The use-oriented and outcome-oriented categories, however, have empty columns, which may indicate that MSMEs have not proven their ability to supply services that are intended to achieve particular objectives. Starting at an eligible stage and progressing until it covers the entire category, the progression to creating sustainable sales is possible. Suggestions for further research that need to be done by increasing the sample used for research.

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References

- Afiatna, F. a. N. F., Anityasari, M., & Surjani, R. M. (2017). Pengembangan Dan Evaluasi Product Service System (PSS) Pada Perusahaan Furnitur Menggunakan Metode Multi-Layer QFD. *Reaktom: Rekayasa Keteknikan Dan Optimasi*. <https://doi.org/10.33752/reaktom.v2i2.200>
- Annarelli, A., Battistella, C., & Nonino, F. (2016). Product service system: A conceptual framework from a systematic review. *Journal of Cleaner Production*, 139, 1011–1032. <https://doi.org/10.1016/j.jclepro.2016.08.061>
- Apsari, N., Purwaningsih, R., & Susanto, N. (2015). Pengembangan Dimensi Keberlanjutan dengan Metode Product Service Systems pada Industri Mebel di Kabupaten Jepara. *Industrial Engineering Online Journal*, 4(4).
- Bhamra, T., Hernandez-Pardo, R. J., Rapitsenyane, Y., & Trimmingham, R. (2018). Product Service Systems: A Sustainable Design Strategy for SMEs in the Textiles and Leather Sectors. *She Ji: The Journal of Design, Economics, and Innovation*, 4(3), 229–248. <https://doi.org/10.1016/j.sheji.2018.07.001>
- Damayanti, D., Alamsyah, A. I. S., & Atirah, A. (2023). Peranan UMKM Terhadap Kesejahteraan Karyawan (Studi Kasus UMKM ISR Bone). *Jurnal Asy-Syarikah: Jurnal Lembaga Keuangan, Ekonomi dan Bisnis Islam*, 5(1), 48-58.
- Ericson, Å., Müller, P., & Larsson, T. (2009). Product-Service Systems - From Customer Needs to Requirements in Early Development Phases. Fraunhofer IPK.
- Farisi, S. A., Fasa, M. I., & Suharto, N. (2022). Peran UMKM (Usaha Mikro Kecil Menengah) Dalam Meningkatkan Kesejahteraan Masyarakat. *Jurnal Dinamika Ekonomi Syariah*, 9(1), 73–84. <https://doi.org/10.53429/jdes.v9ino.1.307>
- Gabler, C. B., Landers, V. M., & Itani, O. S. (2023). Sustainability and professional sales: a review and future research agenda. *Journal of Personal Selling and Sales Management*, 43(4), 336–353. <https://doi.org/10.1080/08853134.2023.2244675>
- Islami, A. C., Kunaifi, A., & Gunawan, J. (2017). Ragam Pengukuran Kinerja pada Usaha Mikro, Kecil, dan Menengah (UMKM) di Surabaya. *Jurnal Sains Dan Seni ITS (E-journal)*. <https://doi.org/10.12962/j23373520.v6i2.23112>
- Jahansoozi, J. (2006). Organization-stakeholder relationships: exploring trust and transparency. *Journal of Management Development*, 25(10), 942–955. <https://doi.org/10.1108/02621710610708577>

- Juanda, R., Risky, M., & Ilham, R. N. (2023). The Influence Of Growth Of Micro Small And Medium Enterprises (UMKM) And Unemployment On Growth Indonesian Economy. *International Journal of Economic, Business, Accounting, Agriculture Management and Sharia Administration (IJEBAAS)*, 3(1), 188-202.
- Kent, M. L., & Taylor, M. (2002). Toward a dialogic theory of public relations. *Public Relations Review*, 28(1), 21–37. [https://doi.org/10.1016/s0363-8111\(02\)00108-x](https://doi.org/10.1016/s0363-8111(02)00108-x)
- Khoiruddin, Y. (2023). Perancangan Aplikasi E-Commerce Pada UMKM Di Desa Gempolkarya. *Abdima Jurnal Pengabdian Mahasiswa*, 2(1), 719-725.
- Lim, C., Kim, K., Hong, Y. S., & Park, K. (2012). PSS Board: a structured tool for product–service system process visualization. *Journal of Cleaner Production*, 37, 42–53. <https://doi.org/10.1016/j.jclepro.2012.06.006>
- Maulana, M. R., Ramadhani, F., Niravita, A., & Lestari, S. (2021). Empowering and protecting local products: The implementation of SMEs product protection and legality in Lerep Village Indonesia. *Indonesian Journal of Advocacy and Legal Services*, 3(2), 207–216. <https://doi.org/10.15294/ijals.v3i2.45844>
- Muttaqien, F., Cahyaningati, R., Rizki, V. L., & Abrori, I. (2022). Pembukuan Sederhana Bagi UMKM. *Indonesia Berdaya*, 3(3), 671–680. <https://doi.org/10.47679/ib.2022287>
- Oey, L. F., & Alamsyah, N. (2022). Analisis Strategi Pemasaran Untuk Meningkatkan Penjualan Perhiasan Pada Toko Emas Mutiara Bogor. *Jurnal Mirai Management*, 7(3), 336-348.
- Östlin, J., Sundin, E., & Björkman, M. (2008). Importance of closed-loop supply chain relationships for product remanufacturing. *International Journal of Production Economics*, 115(2), 336–348. <https://doi.org/10.1016/j.ijpe.2008.02.020>
- Priyono, A. (2017). Understanding the benefits of product-service system for involved parties in remanufacturing. *Journal of Industrial Engineering and Management*, 10(2), 323. <https://doi.org/10.3926/jiem.2050>
- Tukker, A. (2004). Eight types of product–service system: eight ways to sustainability? Experiences from SusProNet. *Business Strategy and the Environment*, 13(4), 246–260. <https://doi.org/10.1002/bse.414>
- Tukker, A., & Tischner, U. (2006). Product-services as a research field: past, present and future. Reflections from a decade of research. *Journal of Cleaner Production*, 14(17), 1552–1556. <https://doi.org/10.1016/j.jclepro.2006.01.022>
- Van Doorn, J., Risselada, H., & Verhoef, P. C. (2021). Does sustainability sell? The impact of sustainability claims on the success of national brands' new product introductions. *Journal of Business Research*, 137, 182–193. <https://doi.org/10.1016/j.jbusres.2021.08.032>
- Wulandari, H. R. T., & Purwanta, E. (2020). Pencapaian Perkembangan Anak Usia Dini di Taman Kanak-kanak selama Pembelajaran Daring di Masa Pandemi Covid-19. *Jurnal*

Obsesi : Jurnal Pendidikan Anak Usia Dini, 5(1), 452.
<https://doi.org/10.31004/obsesi.v5i1.626>