

Exploring the Use of Soft Systems Methodology and Business Model Canvas in Energy Service Companies

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ABSTRACT

Changing the product sales-based business model to be service-based with user-oriented services (UOS) and Result-oriented services (ROS) or a combination is the best way to create a customer value proposition to stand out from competitive price competition. This study explores different business models for energy service companies (ESCOs). This research is based on a case study conducted between September 2021 to January 2023. This study uses action research based on the Soft System Methodology and uses an analogy through morphological analysis to explore alternative service-based business models (service domain). The question component of this study uses a business model canvas (BMC) framework. The in-depth interview determines what top management, customers, experts, and suppliers of energy-efficient products think about the service-based business model. This study found that companies can build alternative business models that represent how organizations create, deliver, and add value to products through service systems through analogous business models. This change in the business model benefits the company due to the increasing awareness of energy services companies for energy conservation and the limited number of energy service companies in Indonesia. The study suggests that ESCOs should consider a service-based business model and invest in resources and commitment. It can create a distinctive value proposition and differentiate itself from competitors. However, combining product, service, and sales system components (Product Service System (PSS) offered simultaneously to customers requires company resources and commitment.

Keywords: Business model analogies, Business model canvas, Business model innovation, Energy service companies, Product service system, Soft systems methodology, ICT: Information and Communication Technology, BASF: Badische Anilin- und Soda-Fabrik (German for "Baden Aniline and Soda Factory"), MWS: Mantra Wira Sejahtera (Company Name 'case'), LED: Light Emitting Diode, OEM: Original Equipment Manufacturer, PT: Perusahaan Terbatas (English for Limited Company), AE: Albertus

Edwinanto (Company BOD 'case'), IN: Ismiriati Nasip (Company BOD 'case'), AWS: Aditya Wira Sriwijaya, FGD: Forum Group Discussion

INTRODUCTION

Entrepreneurs continue to develop new business concepts that did not exist before. Then the next challenge is how they can attract investors, talents, and potential stakeholders to their new ideas. In order to attract people to their ideas, these entrepreneurs must be able to become storytellers. However, stakeholders, investors, and potential customers, most of whom do not have time to listen to long stories around unproven concepts and unconventional ideas. Albert Einstein said, *"Growth comes through analogy, through seeing how things connect, rather than only seeing how they might be different."* The use of analogies can bridge this situation. Analogies help people connect unconventional ideas with more familiar ones. The use of analogies is a creative way to imitate and translate strategies and ideas that exist in different industries or companies or borrow analogies from different industries or companies and then reframe them according to the concept and context of the business model we build. Business Analogy is the application of meaning, information, or strategy from the business model of an industry or entity that is not related to the business model to be built.

So, what is a business model? A business model is "a system of interrelated and interdependent activities that define how a company 'does business' with its customers, partners, and vendors, Amit and Zott (2001). There are several well-known founders of the business model. Through the Business Model Navigator – "55 models that revolutionize Your Business", Gassman, Frankenberger, and Csik (2014) outline fifty-five business models that can revolutionize entrepreneurs' businesses. Then there is Business Model Generation Osterwalder and Pigneur (2010). His nine-block canvas, known as the business model canvas (BMC), is widely used by academics and businesspeople to analyze the position of the company's business model in a dashboard and allows companies to compare them with competitors more simply and easily. Another well-known initiator of the model's business is Mark. W. Johnson, through "Reinventing Your Business Model and Seize the White Spaces," Mark. W. Johnson shows that there is a space that companies can use to take advantage of the market through a different business model from competitors. Then there is "Open innovation," which was initiated by Henry Chesbrough. Chesbrough stated that companies with innovations carried out outside would be able to serve potential customers who have not been touched by the company, which will ultimately strengthen and enlarge the company's position in a competitive market (Sudarmaji, 2017; Sudarmaji & Nasip, 2018).

The approach of this paper explores how the energy service business is currently practised and identifies alternative business models based on business model innovation (Nasip & Eka Sudarmaji, 2018; Sudarmaji, Achsani, Arkeman, & Fahmi, 2021). The Checkland *Soft System* methodology or soft systems methodology is used to explore and assess current and business practices in the energy service industry. Morphological analysis and business model canvas explore alternative business model innovations. Morphological analysis and business model canvases map the competitive arena in the market definition and innovation context. Morphological analysis was developed using a business model canvas template that can generate various alternative business models. The template consists of nine blocks, and the

selection of successful companies in their field to be used using morphological analysis was verified through literature analysis.

For this reason, the statement of the problem that this research must answer concerning creating a business model for the PSS product service system based on an alternative conceptual business model that energy service companies can use ESCO is essential to research. Therefore, along with the above arguments, the authors write the following research questions: "What is the alternative conceptual-based PSS product service system business model adopted by the company, which translates into the company's capabilities and competencies in the future?"

LITERATURE

Field (2011) defines at least seven business model frameworks, namely, The Business Model Canvas (Osterwalder & Pigneur, 2010), the Four-Box Business Model (Johnson), the STOF model (Bouwman & Felt, 2008) Business Model Schematics (Weill & Vitale, 2001) Technology/market mediation (Chesbrough & Rosenbloom, 2002) entrepreneur's business model (Morris, Schindehutte, & Allen, 2005) and e -value (Gordijn & Akkermans, 2001) Meanwhile, this study adopts the business model canvas. It uses nine blocks of Osterwalder and Pigneur because the business model canvas can analyze how energy service companies can create new value propositions for their customers. Through the business model canvas, energy service companies can see how they can run their business, how organizations are involved in the production, marketing, and other operational processes, and maintain their relationship with customers to maintain the sustainability of their business in the future. The author describes a usage-based and results-based service proposed for each component feature of the company's business model, including the aspects and benefits in the implementation phase.

Morphological analysis began as a problem-solving method in engineering. This method grew and continues to be used in the policy, alternative strategy, and organizational planning. The application of morphological analysis in business management and the commercial sector is relatively slow to implement because it involves organizational goals and implementation time—several empirical studies have been used in the corporate sector (Turley, Richardson, & Hansen, 1975). Morphological analysis is also used for healthcare system planning analysis (Lee & Lee, 2015) to analyze creativity in management (Ritchey, 2002). Morphological analysis is also a policy analysis tool (Duczynski, 2004). The authors used it in research strategies for Economic Development for Indigenous Peoples in Australia. At the same time, Alvarez and Ritchey (2015) used it as the Strategy for Extended Producer Responsibility (EPR) system. Sharif and Irani (2006) used a morphological approach in management decision-making. Ajith Kumar and Ganesh (2009) use it for Knowledge transfer in organizations, Plauche, Waal, Grover, and Gumede (2010) use it for ICT applications in government service delivery, and Kuriakose, Murty, Swaminathan, and Raj (2011) use it for the Knowledge Management Maturity Model.

Meanwhile, the application of analogous business morphology analysis for business model creation and innovation was also carried out by Lee, Shin, Hong, and Kim (2011). Other authors studied Business model creation using case-based reasoning (Ludmiła et al., 2018). They explored and used it to build marketing innovation; Im and Cho (2013) and the researchers use

analogies to develop business models from new, and Kwon, Lee, and Hong (2019) use them for prototyping a Business model. For this reason, the author will use a similar business morphology by combining it with the Checkland soft system methodology, as Duczynski (2004) did in a case study. The author uses the Checkland product service system combined with analogous morphology analysis and business model canvas in this study. The product-service system Checkland methodology illustrates how ESCO's energy service company has transformed sales services in the energy-efficient market by introducing an innovative new product-service system (PSS) business model. This business model change is due to the support of new technologies, innovative services, supply chain management, optimized cost structure, and unique resources. This shift in developing the company's business model is generated by ideas systematically created based on morphological thinking.

METHOD

The business model canvas (BMC) can be an analytical tool on 'how ESCOs can create corporate value.' Through BMC, ESCO energy service companies can see how they can run their business, engage in production processes, marketing, and other departments, and maintain their relationship with customers to maintain their sustainability. The advantages of BMC are strategic planning and development, a tool for expressing ideas, a tool for knowing customers, a dashboard/indicator, and a tool for knowing competitors (such as the level of competition). In addition, BMC can also analyze business portfolio models and innovation planning; to align the organization's mindset.

Empirical evidence shows that 90% of business model innovations, including existing business models, have elements of the old business model. The company needs to implement the appropriate business model that can perform effectively and optimally by taking business models from other companies in different industries. To improve organizational efficiency, companies must use new business model innovations to implement innovation within the organization. The best source of income in the energy efficiency industry is the product-service system business model or PSS, oriented towards *using user-oriented services (UOS) products*. Moreover, results-oriented, where unique services generate revenue or *result-oriented services (ROS)*.

This results-based compensation business model emerged during the mid-20th century. At that time, this compensation business model continued to evolve and find its way. BASF Coatings was the first company to base its sales on selling goods directly by charging consumers a fixed price. Xerox, an American manufacturer of copiers and printers, promoted this compensation business model through service efficiency. This model was further refined under the Power by Meter program by Rolls Royce. When Rolls Royce sells their engines on a service basis, they ship them in instalments and charge a fee for each instalment based on how many hours the Rolls Royce engine is used. This compensation model business then developed rapidly along with the proliferation of new business models, with a slightly different name but having the same concept as before.

Through Gassman's Magic Triangle concept, this research defines an alternative ESCO business model using morphological analysis of analogies or business model patterns. This stage aims to collect reusable business model patterns used to build new business models (see Figure 1).

Current and future business trends are investigated to select the right business model components. Figure 1 shows how the final output stage business model is generated to develop an efficient business model for an ESCO service company through a case study example. Interviews with company board members and experts related to the ESCO business consisted of considering the ESCO business model and description of its different features.

Using the method by Lüdeke-Freund, Bohnsack, Breuer, and Massa (2019). Lee, Shin, Hong, and Kim (2011) and Lee et al. (2011) adapted the business model pattern analysis and then created the business model's key component. The authors discover popular business models in the ESCO industry through the Smart Business Modeler. For example, various business models have incorporated trends from other business models. How to set up a business model is obtained by analyzing business model patterns through the morphology of the BMC matrix, see Figure 1.

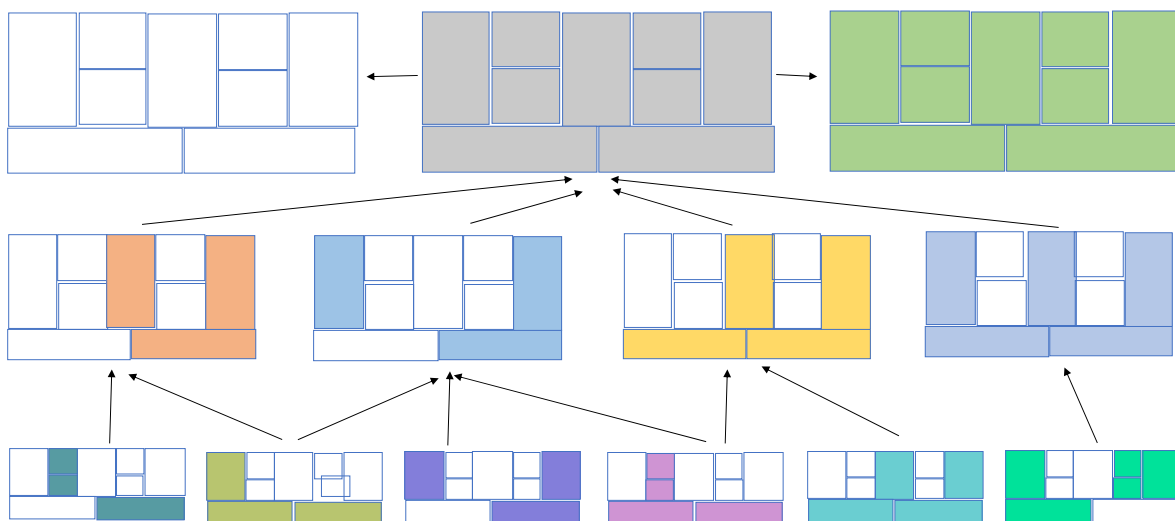


Figure 1: Business model pattern.

Source: Lüdeke-Freund, Florian et al. 2018.

RESULTS AND DISCUSSION

Based on the general information obtained in the documents collected, MWS focuses on the B-to-B segment because the producer Philips as the principal divides distributors based on the target market, see Figure 2. PT. MWS is part of the Sriwijaya Group. MSW's comprehensive portfolio includes:

1. Philips Consumer Lighting Solutions,
2. Philips Professional Lighting Solutions,
3. Color Kinetics High-Performance LED Solutions,
4. Dynalite and Interact Connected Lighting Systems, and
5. Philips OEM Customization Solutions, PT. MWS is committed to providing the best solution for all lighting needs. MWS services include financial provision assistance through *retrofit financing solutions*.

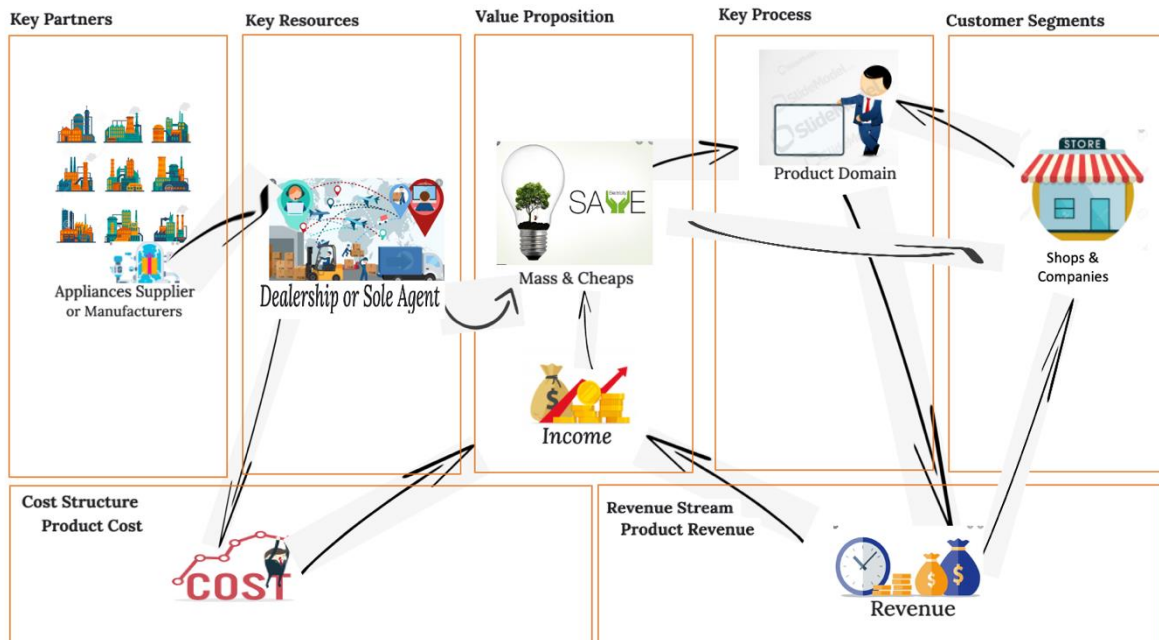


Figure 2: B-to-B canvas business model – PT. MWS.

MWS improves the marketing/customer acquisition process by actively attending engineering exhibitions and symposiums for customer value propositions by promoting energy efficiency through retrofit financing. This changing value proposition can achieve a sustainable competitive advantage for the company in the long run.

This business model change changes the organization's strategy, including changes to the company's operational structure and culture to be more customer-centric. For this reason, the company is actively seeking new collaborations with principals, other manufacturers, and professionals in the building construction field.

Therefore, a minimal and highly customized target customer can be served by the service concept of a service-based company. The product-based service concept with a combination of profit-sharing retrofit financing that MWS will carry out allows the company to save energy costs on the customer side and provide new markets and customers for energy service companies. MWS can run two forms of service sales through the concept of product-based services, namely user-oriented services and results-based services, see Table 1.

Table 1: Classification of product-based services in energy efficiency industries.

No	Three types of PSS model business forms according to BMC elements	Product-oriented services (POS)	Use-oriented services (UOS)	Result-oriented services (ROS)
1	Type of ESCO	Traditional Purchase (Direct)	Energy service performance contract	Energy saving agreement
2	Customer segment	Client has product	The client enjoys the use of the product, but the client is not the owner of the product	The client is not the owner of the product
3	Value proposition	The client owns product ownership	ESCO ensures the product works and the client has access to the product	ESCO ensures the product works
4	Channel	The company does not directly deal with clients	Rental Contract	The company directly deals with clients
5	Customer relations	Transactional based	Based on a mix of relationship and transactional	Relationship-based
6	Income stream	Payment is made due to buying and selling	Payment is subject to service availability.	Payments are made on a per-unit-time or unit-use basis.
7	Key partner	Partner is done because there is an outsourcing contract	Collaboration with service providers in the long term.	We need to manage outsourcing tasks efficiently.
8	Main activities	Large-scale production	Need for new Partner and service management	The new activity focuses on designing products and services based on their functions and how to extract consumer needs.
9	Fee structure	Product production cost	The need for capital is tremendous	There is a significant capital requirement to cover all product life cycle costs.

Building Alternative Business Models

Following Gassman's Magic Triangle, this study defines an alternative ESCO business model consisting of four dimensions in the form of a 'Who-What-How-Why' question, see Table 2.

Table 2: Gassman's triangular skeleton.

Function		Definition
For who?	Customer relations	Describes the types of partnerships ESCOs have formed with the energy efficiency building segment.
	Customer segment customer	Stakeholders who represent the organization.
	Distribution channel	Describes how ESCO organizations address and reach different consumer groups to deliver value propositions.
What?	Value proposition	Determine the value of the proportion generated by a particular customer.
	Main resources	The need for resources or capital to oversee and convey the above points
How?	Main activities	It outlines a company's essential activities to carry out its operations.
	Main partner	A network of partners and suppliers that help PSS's business model run smoothly.
How much?	Income stream	The monetary value of the activities carried out.
	Fee structure	Costs associated with running the PSS business model

Then, the resulting conceptual business model must align with the PSS characteristics, as in Table 3.

Table 3: Characteristics of the PSS business model.

No	PSS characteristics	Information
1	Physical product	The PSS defines a product as a "physical" object
2	Products and services	PSS consists of product and service components.
3	Network and Infrastructure	PSS forms an ecosystem that includes more than just businesses and end-users. PSS does not (should) add value only to businesses and customers, and other actors in the network
4	Customer satisfaction and value creation	Customer satisfaction and value can also increase as a result of PSS.
5	Environmental impact	Compared to conventional solutions, PSS (can) reduce environmental impact in meeting consumer needs.
6	Competitiveness	PSS is a company that creates competitive market solutions.
7	Business model	PSS has developed a new business model that involves changing product ownership.
8	Innovation strategy/design process	PSS is a "design method" and "innovation policy."
9	Customer life cycle	In addition to the product use process, there is an emphasis on other customer activities relevant to PSS.
10	Product life cycle	PSS includes consideration of the entire product life cycle.
11	Learning system	The purpose of a learning system is to progress continuously through its development and use.

In addition, the author creates a new alternative business model based on the Checkland soft system methodology model. Using BMC elements, the authors develop a conceptual-based system to support the creation of a new PSS business model. The author compares this

alternative and conceptual-based PSS business model with the current one. How this alternative and conceptual-based PSS business model is used differs from the current business model through case studies. The conceptual-based PSS business model ultimately aims to create a new business model that helps the ESCO service company PT 'MWS' develop, evaluate and select the best business model to meet the goals of the energy service industry.

To answer the research questions and the arguments built above, the following are the results of interviews that the author got from the top manager of PT 'MWS' regarding the implementation of the alternative business model used by the company. The interview results will also be contextualized to answer the research questions in the introductory section: "What is the alternative conceptual-based PSS product service system business model adopted by the company, which is translated into the company's capabilities and competencies in the future?" When the author explores the operations of PT. MWS to see - 'how can the business opportunity model be formulated?', 'how innovative can the ESPC and ESA contract concepts be tailored to the customer? The authors found that 'potential customers,' 'retrofit programs,' 'energy-efficient, and 'potential customers' were in the board of directors' statements who shared their views on 'customer readiness.'

"For those who agree to use this program, most decision-makers see the benefits from a financial and investment perspective. Meanwhile, those who refuse to use this program are usually constrained in terms of understanding and perception of energy saving, so they cannot follow up on the replacement proposal to stakeholders (owner/chairman of the building management agency)" - AE's Board of Directors.

"Our customers and prospects recognize that energy savings are necessary, and they are ready to make them. However, because the price of energy-efficient equipment is higher than conventional equipment, some still prefer to use conventional equipment, given the cheaper investment. Regarding the retrofit program, they like the retrofit program that we offer, where decision-makers see the financial and investment benefits. The complexity of administrative affairs generally limits those who do not want to use the internal strengthening program" - Directors IN.

Meanwhile, the answer from the directors of PT 'MWS' when asked about their views on the 'retrofit program.' That will be the company's current and future revenue streams.

"Most of our customers do not know that this program is available. This program is not easy to understand from some observations as it requires further observation beyond their commitment to "buy the product." Besides being "complicated," many customers are reluctant to carry out the monitoring process (recording energy use), so that in the end we only offer this program to certain customers." - AE expert.

"There are still many of our customers, and potential customers who do not understand what a retrofit is, and they do not even know that there is a retrofitting program they can take advantage of" - IN expert.

Providing ESCO energy services will effectively address the market potential in the energy

efficiency business that many companies have not exploited for a long time. The answers from the directors of PT 'MWS' on 'potential market' and 'competition' are as follows.

"The potential for this retrofit program is quite large, especially considering that most buildings in Jakarta were built between 1980 and 1980—2000 (more than 20 years ago)" – AE Expert.

"The potential for retrofit projects in the DKI Jakarta area is quite large, considering that there are still many office buildings/hotels/apartments that still use conventional products" – expert IN.

Competition is insignificant because many companies prefer to run a buy-to-break sales mechanism due to limited funds to circulate money. However, this statement may also be slightly biased because the size of the retrofit market cannot be measured with certainty, considering that there are still many building managers who are accustomed to buying and selling mechanisms" – AE expert.

"Energy-efficient equipment providers prefer regular sales over sales through retrofit programs. So the competition in the retrofitting project is not very significant" – expert IN.

The benefit of the retrofit program to customers is the profit sharing of the energy cost savings they obtain through equipment replacement. Therefore, it becomes an entry point for MWS to sell its programs. The answer to 'energy-saving profit-sharing.' AE expert.

"All customers/prospective customers already understand the benefits of this strengthening program. However, many do not care about savings from what we feel as sellers. Even though they can save money in the future, most customers/prospective customers are more concerned with saving. About what will happen today, and how much savings can be made today" – AE expert.

"With the calculations and explanations we convey, customers and potential customers have understood the benefits of this retrofit program. However, unfortunately, they are more concerned with what they can feel now, so they do not care about profits in the future. - IN specialist.

Facing the changing business model, the author finds that PT 'MWS' adapts quickly and innovates in the internal processes of their organizational structure to promote the ESCO energy service program they offer to their customers. Of course, this change process requires fundamental changes in the structure, culture, company competencies, operations, and partnerships (Baines, Lightfoot, Benedettini, & Kay, 2009; Pawar, Beltagui, & Riedel, 2009). In addition to the risk costs that occur when customers fail to pay (default), the main problem for PT 'MWS'. The process of borrowing or granting credit for energy-saving equipment to customers is the same as any other loan process at a banking institution or financial institution. Customer creditworthiness and default risk are of the utmost importance to energy service companies ESCO (Eka Sudarmaji et al., 2021). Therefore, PT. 'MWS' must conduct an assessment or credit scoring on customers who apply for a retrofit financing contract to check the customer's creditworthiness. For this reason, the answers from the directors of PT 'MWS' about

their views on energy savings for profit sharing are as follows:

"There is no special process or comprehensive analysis of customer/prospective credit risk assessment. All we do is analyze the owners (and their affiliate groups) and the traffic of potential customers they have (tenants, etc.)" - AE expert.

"We have not carried out any special examination/analysis related to credit risk. We analyzed the building owners and their affiliated groups in everything we have done. We also check their payment performance as our customer" – AE expert.

"For customers, the main factor is their payment performance while being our customers. As for potential customers, the factors we consider are the location of the building, the owner of the building, their participation in receiving retrofit programs, and information from third parties about building services to tenants" – AE expert.

Comparing Business Models

When determining whether the PSS business model is workable, companies should consider the company's current situation and how it should function in the future. Kwon et al. (2019), Lee et al. (2011), and Lüdeke-Freund et al. (2019) add to the currently popular 'business model pattern' when building a new business model for a company.

Therefore, the performance of the built PSS enterprise model can be compared with the new existing business model. It allows the authors to analyze the barriers and potential benefits of the built PSS business model. In addition, adopting new business patterns is implemented gradually, implying that the effects and risks in the business model transition are emerging. The idea of building a PSS business model can also be done simply by adding some essential elements to the PSS business model instead of building from scratch a new business model.

In this case study, MWS creates a new additional business to implement PSS and spin-offs from AWS operations to develop radical innovations. Therefore, considering the above two approaches, MWS created a new business model. A comparison is made by investigating PSS's business model between the current practice at PT 'MSW' and the conceptual business model. This step is taken using a standard approach where the aim is to analyze the differences between the two business models.

The PSS business model is then analyzed using a "feasibility analysis and a cost-benefit analysis." The results of the recommendations from the analysis can be seen in Table 4. The author describes each component feature's proposed PSS business model, including aspects and benefits. The following issues are highlighted by comparing the PSS business model to a new alternative one.

Table 4: Recommendations for possible action.

No	Information	Recommendation	Learning process	Alternative business model (Type of PSS)	Business Type
1	P) to expand the target market ((Q) to achieve scalability and economies of scale (R)	PT ' MWS ' is not customer-centred and does not realize that competition through online sales is at the expense of company profits. "NO New Business Concepts."	PT ' MWS ' learned that comparison with Offline retail business lines (B-to-C) has different business objectives, strategies, and systems.	Product-oriented services (POS): Online business type	B-to-C
2	Distributor company (PD domain) improves marketing/customer acquisition process (P) by actively attending seminars or exhibitions to convey new company value proposition ((Q) to achieve high return performance and get out of the tight competitive situation (R)	PT ' MWS ' is customer-centric and runs product distribution. Top Managers need to be more active in finding new credible staff. The company focuses on particular customer segments with a B-to-B concept, thus creating substantial business opportunities.	PT ' MWS ' studied the comparison of product distribution with Online retail business lines (B-to-C) because the company runs a B-to-B business with different goals, strategies, and systems.	Product-oriented services (POS): Project business type k	B-to-B
3	Energy supply company ESPC improves the marketing/customer acquisition process (P) by actively attending seminars or conferences to promote energy savings through retrofit financing (Q) to achieve a sustainable competitive advantage for the company (R)	PT ' MWS ' is customer-focused and running a new PSS business model. The company actively seeks new collaborations with manufacturers, architects, professional designers, etc. Markets with particular customer segments with the ESPC concept that brings the functional capabilities of energy-efficient equipment through the rental business	PT ' MWS ' studied the comparison of ESCO with the product distribution business line (B-to-B) since the company was running a different PSS business model through ESPC goals, strategies, and systems.	Use-oriented services (UOS); ESPC business type	B-to-B

4	ESA companies improve their marketing/customer acquisition processes (P) by actively attending engineering Events to spawn new companies and promote energy savings through retrofitting financing (Q) to achieve a sustainable competitive advantage for the company (R)	PT 'MWS' is customer-focused and running a new PSS business model. Companies must seek collaborations with manufacturers, architects, professional designers, etc. A dedicated market with the ESA concept that delivers functional results of energy-efficient equipment through direct connection	PT 'MWS' has studied the comparison of ESA with the ESPC line of business (B-to-B) since the company ran a different PSS business model through ESA goals, strategies, and systems.	Result-oriented services (ROS): ESA business types	B-to-B
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Evaluation of Business Model

The ideas generated during the previous stage have been discussed with PT "MWS," which plays an essential role in selecting or evaluating the overall business model. The debate in this case study occurs mainly within the changing organizational structure of PT 'MWS'. It is important to note that this change in the business model also ensures acceptance of the views of market participants, especially potential customers, about shifts in the company's service process. FGD sessions were held to find out this side. However, it was later found that this shift or change in the business model was considered a positive action. It was recognized that this service practice effectively addresses existing problems on the customer side and opens up untapped market potential in the energy efficiency business.

PT 'MWS' transforms marketing plans, discounts, or cost-cutting initiatives through this PSS business model into customer-centred value-added programs. Then PT 'MWS' creates product and service variability. PT 'MWS' understands the importance of providing value-added services to complement the sales of LED lighting products. PT 'MWS' shifted its business focus from selling physical products to offering functionality, service, and performance. It emphasized the role of product-service systems (PSS) as a concrete response to emerging price war pressures, as seen in B-to-C (sales) markets. Online). The author uses the cost-benefit analysis method in the cost and benefit analysis to use the ESPC and ESA business models. For this reason, the business costs and benefits of financial savings from using the new PSS business model with the existing business model are compared (the time difference between the two flows can be measured in months or years).

Perfecting the Business Model

The next step is to find the best solution that satisfies the different interests until this alternative business model meets the facts and logic requirements. Developing recommendations and solutions for the desired improvement is the final stage of the soft systems methodology framework. This step determines the action to be taken by identifying the main factors. The author limits this research to the sixth stage of comparison of the model

with the real world. The proposed corrective actions provide additional strategy analysis to uncover a new PSS business model for ESCO energy services. Therefore, the next stage in this research is to determine alternatives using the morphological analogies method, the business model pattern or "Business Model Pattern (BMP)," and the business model canvas or BMC.

As explained in the previous step, the author adds elements of a popular business model widely used by the best companies in the world to create a new business model for ESCO energy services. The added popular business model pattern is used as an alternative business model innovation component. The concept of adding business model elements can be seen in the chart below. It can be seen that the chart of additions to the developed business model is taken from elements of the existing popular business model. So it can have various business model options (see Figure 2). The chart depicted using a business model canvas (BMC) consists of several business model elements that show general aspects of business model development. Namely, product or core competencies, consumer search, market research, supply chain creation, and cost or revenue prediction. The prototype comprises nine real-world business model case blocks from the Smart Business Modeler (SBM). SBM contains 350+ business model patterns (Lüdeke-Freund, Bohnsack, Breuer, and Massa (2019).

Introducing A New Business Model

Companies must adapt quickly to changing customer expectations and the ability to develop products and services through changing new business models. Companies must also innovate in their internal processes to promote or sell their products and services appropriately. To build a new business model, the authors follow the framework of BMC's Osterwalder and Pigneur because BMC balances the financial and customer infrastructure aspects. The BMC components are drawn from the nine blocks of the Company Canvas. The advantages of using BMC elements are for strategic planning and development, a tool for expressing ideas, a tool for knowing customers as a dashboard/indicator, and a tool for knowing competitors (such as the level of competition). In addition, BMC can also analyze business portfolio models and innovation planning; to align the organization's mindset. The complete map of the business model strategy is shown in Figure 3.

Customer Segment:

The company aims to concentrate its business on the B2B and B2C market segments. Customer segmentation allows companies to group their consumers by their economic value. The segmented approach allows PT 'MWS' to quickly validate customers' desire to provide differentiated services and energy-efficient products.

The Value Proposition:

The Value Proposition can be customized according to each customer's needs, such as the energy-efficient equipment used and the service package the customer wants to purchase. The customer value proposition is increased by better integrating products and services and meeting customer needs. A complete warranty for the duration of the warranty covers the product life provided to the customer, who will benefit from improved performance and service. The company can also provide retrofit financing. In retrofit financing contracts, the rate of return must meet the investment costs of changing energy-efficient equipment.

Customer Relations:

Customer loyalty, intimate partnerships with customers, and helping principles are planned to be achieved, such as product service customization, which is ways organizations seek long-term relationships. Regarding cost, PT 'MWS' promotes creating affordable solutions for enterprises.

Distribution Channel:

PT 'MWS' decided to build a new client segment by combining the services provided through indirect and direct channels and value-added resellers.

Revenue Streams:

PT 'MWS' expects a steady income stream from retrofit contracting activities. This income is generated after the costs incurred for the additional products and facilities required after the signing of the retrofit contract.

Resource Main:

The primary resources considered by the company in this new PSS business model are human resources, company reputation, partnerships, and the influence of brand products sold. Key resources are the essential assets and people needed to make the business worthwhile. These resources build value propositions, satisfy target audiences, maintain consumer loyalty, and make money. First, PT 'MWS' resources involve qualified staff to serve and provide technical services. Second, PT 'MWS' has a strong reputation based on how it has previously managed its affairs. In Collaboration, PT 'MWS' also continues collaborating with other brands to produce products.

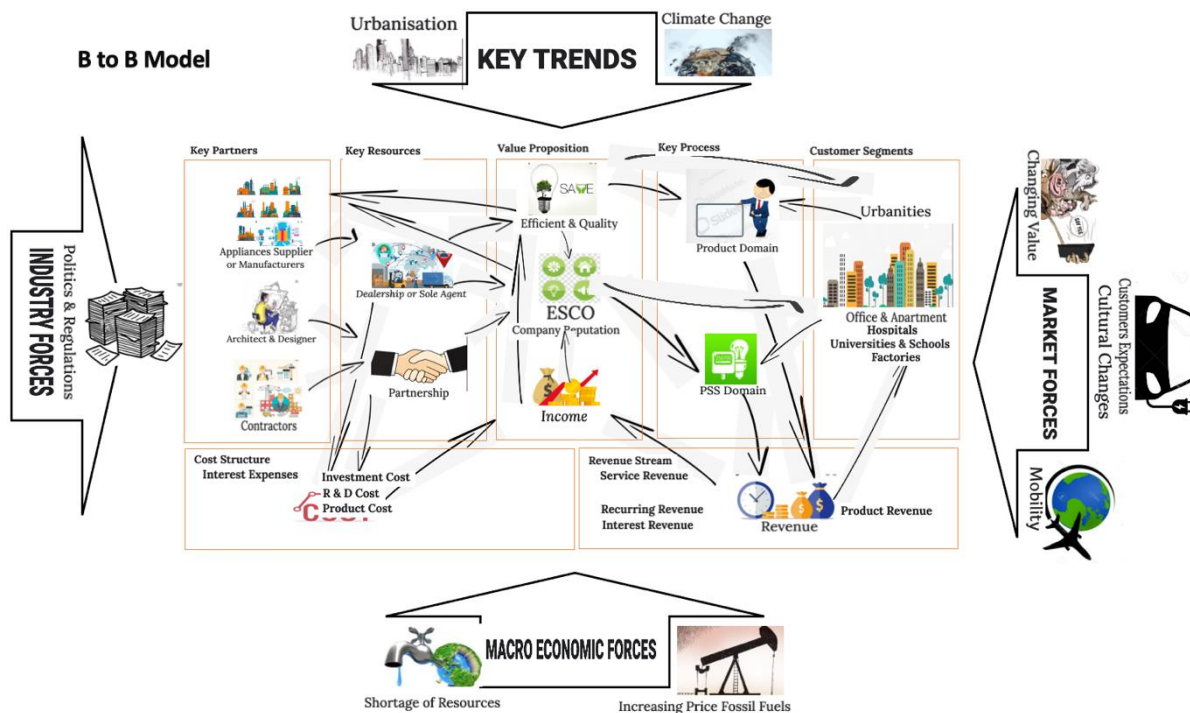


Figure 3: The final implemented business model.

Main Activities:

The main activities of MWS are ancillary services and the production of services under the ESPC and ESA. Service production requires an energy-efficient equipment service package with a service guarantee. This service guarantee can be controlled due to the presence of new technology products, which result in consistent and efficient product quality for consumers, thereby helping them to control their electricity and energy costs. Although ESPC and ESA contracts are considered to have higher margins, it is not easy for PT 'MWS' to carry out this business transformation. PT 'MWS' must fundamentally change how they work and mature their ability to design, deliver services, and build new skills. PT 'MWS' also needs to change its organizational concept, customer satisfaction assessment metrics, and rewards, as shown in Figure 4, which depicts the main activities of PT 'MWS' on ESPC and ESA service contracts under the PSS business model.

Key Partners:

The most critical aspect of the PSS business model is working with contractors and product suppliers to create a business framework under the ESA and ESPC project contracts, see Figure 4. To provide full service to customers, service collaboration needs to be built. PT 'MWS' created a new business model unit responsible for the PSS business model for retrofit financing. Because retrofit financing is the new main innovation of PT 'MWS' that is being implemented, credit scoring on retrofit financing is the most crucial thing for PT 'MWS.' A retrofit contract agreement requires a law firm capable of making good ESA and ESPC agreements.

Cost Structure:

The number of partners will reduce the company's profit share. The risk PT 'MWS' faces is that the company needs to make a large initial outlay as an investment to get this retrofit project. The cost structure of the PSS business model is; also PT 'MWS' is responsible for the costs of the maintenance, repair, new spare parts, and delivery processes, including waste or disposal of the final expired product.

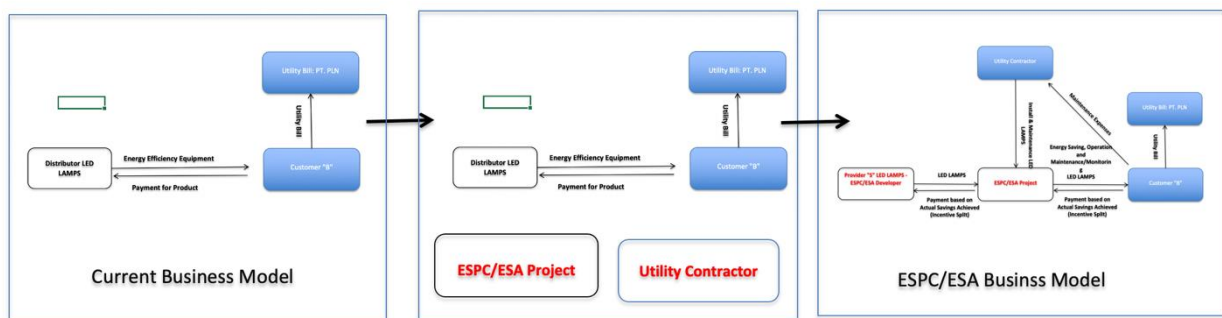


Figure 4: PSS business model implementation process.

Based on the new business model above, PT 'MWS' needs to continue to improve its retrofit financing business model. Energy Saving Performance Contracts ("ESPCs") and Energy Savings Agreements ("ESA") are the best options for companies to generate new revenue and serve target customers and new markets available in the energy-efficient industry. Through adequate contractual agreements – the risk of payment delays by the customer or the customer's inability

to fulfil the service contract payments, PT 'MWS' can still pick up and install energy-efficient equipment. This retrofit funding program allows customers to make payments to retrofit providers from energy cost savings (Nasip & Eka Sudarmaji, 2018; Sudarmaji et al., 2021).

CONCLUSION AND DISCUSSION

The author uses the BMC Osterwalder and Pigneur scheme in building a new business model because BMC offers a holistic perspective. After all, it defines the business model built considering the elements of financing, customers, and infrastructure simultaneously. This study takes the various business modelling trends investigated to build each new business model dimension. Figure 5 is a complete chart of business model strategies and a description of each strategy when building a business model based on the analogy. Through a case study example, this research shows how to develop an efficient business model for an energy service company (ESCO). Interviews with management and the company's board of directors were conducted when considering its business model and features. The discussion resulted that PT 'MWS' needs to embrace retrofit financing business models, namely Energy Saving Performance Contracts ("ESPC") and Energy Savings Agreements ("ESA"). The final business model offered for PT 'MWS' can be seen in Figure 3 above.

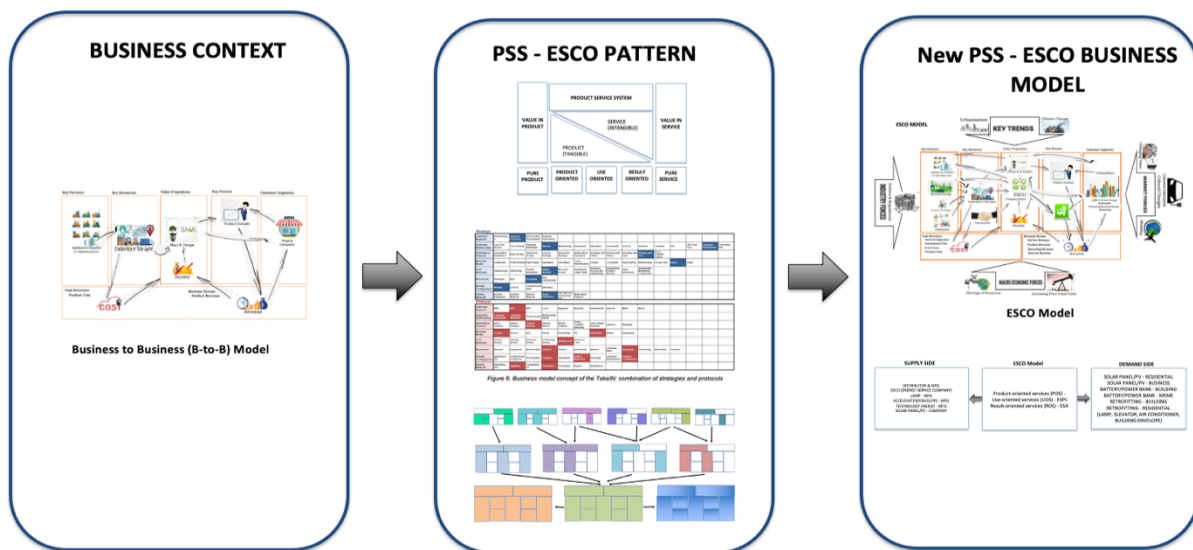


Figure 5: The process of building a BMC based on an analogy

This study focuses on companies undertaking an "ESCO model" on energy efficiency industries or Conservative Energy projects. PT 'MWS' intends to implement a new PSS business model for energy services or ESCO in Indonesia. Identifying and describing the specific features of the PT 'MWS' business model are derived from the existing and popular business model patterns. Patterns and classifications of business models can be applied as design patterns in designing conceptual business models. This method of morphological analogies plays a vital role in discovering new business models in several ways, including recognizing and explaining new and current models, realizing and applying information about business models, and promoting business models and organizational design and innovation.

This study uses three techniques: soft systems methodology, similar morphology or what can be called a business model pattern, and a business model canvas. The authors ensure that the three methodologies can bridge the collaborative description of business components and the gap between real-world abstraction and business modelling. In the case of PT 'MWS', the soft systems methodological approach demonstrated its ability to recognize transformational barriers, understand the consequences for overall success, and, most significantly, consider these problems and solutions for the customer. While the work presented here is preliminary, it demonstrates how to effectively capture the perspectives of those involved in the product transition to PSS and enable the joint completion of one part of the value-added development task. It helps the manager in completing the transition successfully. PT 'MWS' modified its marketing strategy in response to intense competition by breaking conventional barriers between goods and services.

Using a new alternative business model, PT 'MWS' adds a new value proposition to customers and charges a higher price. This business model encourages PT 'MWS' to differentiate products (enhanced products) by improving the quality and service of the company's products. Examining the characteristics of the PSS business model is a necessary first step for a business to move from a product-only offering (domain product) to a service system combination (domain service). The main characteristics of the three types of PSS business models (product-oriented services, user-oriented services, and results-oriented services) are presented in this study. The authors categorized using the nine elements of Osterwalder & Y. Pigneur's Canvas business model to explore it.

The findings of this study assist companies in adopting PSS to determine business models. It can also help companies that already provide PSS make necessary adjustments or improve their current business results. Given the characteristics of PSS and the findings of this study, it is clear that two new elements in the PSS business model must be considered: the environmental and innovation elements. The PSS business model discusses the sale of company services on a circular basis or is environmentally friendly because it has the potential to reduce the waste of products that are sold (waste) haphazardly and have an environmental impact. The PSS business model also allows companies to take advantage of the potential results of customer innovation and enables greater collaboration with other customers and prospects by creating a network.

From the results of this study, the authors note that PT 'MWS' can enter a new business model through ESCO services in the energy efficiency business sector, which is currently not widely used and has excellent potential. This research learns a lot about how PT 'MWS' carries out its ESCO service strategy to gain opportunities and open new markets by promoting environmentally friendly technology equipment, ultimately aiming to maintain the company's performance to grow sustainably. A new opportunity that PT 'MWS' is pursuing is to implement the PSS business model in the form of an Energy Saving Agreement (ESA) or Energy Saving Performance Contract (ESPC), known as a "retrofit" contract. One of the challenges for the new PSS business model is that it does not fall within the ESCO regulatory framework created and developed by the government. Nevertheless, this business model can be applied to specific business situations in Indonesia. In other words, PT 'MWS' has complete confidence to take

advantage of the potential business in the energy efficiency industry under the PSS business model because the PSS business model has the minimum risk it entails.

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