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PUBLICATION		
2024	Entitled	Evaluation of sustainability and technological management for Logistics 4.0
	Journal	International Journal of Logistics Research and Applications (IJLRA)
	Publisher	Taylor & Francis
	Scope of study	Sustainability; Technology management; Logistics 4.0; Fuzzy decision-making trial
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2022	Entitled	Impacts of the fifth-generation technology on sustainability
	Journal	International Journal of Logistics Research and Applications (IJLRA)
	Publisher	Taylor & Francis
	Scope of study	5G technology; UTAT; triple bottom line; manufacturing; healthcare; SEM with a new factor-based method
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2022	Entitled	How energy efficiency, smart factory, and mass personalization affect companies in industry 4.0
	Journal	AIP Conference Proceedings
	Publisher	AIP Publishing LLC
	Scope of study	Industry 4.0; Energy efficiency improvement; Smart factory; Mass personalization; Organizational performance
	Date	Published Online: 25 April 2022
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	Funding	-
2021	Entitled	Developing a framework for Industry 3.5 to strengthen manufacturer performance
	Journal	International Journal of Logistics Research and Applications (IJLRA)
	Publisher	Taylor & Francis
	Scope of study	Industry 3.5; digital decisionmaking; digital transformation; total resource management; manufacturer performance; manufacturing
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CONFERENCE		
2021	Entitled	How Energy Efficiency, Smart Factory, and Mass Personalization Affect Companies in Industry 4.0
	Conference	International Conference on Informatics, Technology, and Engineering 2021 (InCITE 2021): Leveraging Smart Engineering
	Scope of study	Energy efficiency, Careers and professions, Industry, Statistical Analysis, Partial Least Squares
	Date	August 25 – 26, 2021
	City, country	Surabaya, Indonesia
	Hosted by	Universitas Surabaya (UBAYA)
2021	Entitled	A Logic Model Development for Planning Program in Indonesia SMEs. Case study: Pucung, Manding, and Keparak Kidul Leathercraft Industries
	Conference	The Second Asia Pacific International Conference on Industrial Engineering and Operations Management
	Scope of study	Production and Operations Management
	Date	September 14-16, 2021
	City, country	Surakarta, Indonesia
	Hosted by	IEOM Society International
		ISSN: 2169-8767 (U.S. Library of Congress) ISBN: 978-1-7923-6129-6
2018	Entitled	An Analysis of Raw Material Inventory Management on Leather Craft Industries at Special District of Yogyakarta: A Case Study Among Keparak Kidul, Manding, and Pucung
	Conference	International Conference on Technology for Sustainable Development (ICTSD)
	Scope of study	Inventory Management
	Date	Oct 12 - 13, 2018
	City, country	Yogyakarta, Indonesia
	Hosted by	Sekolah Vokasi (SV) UGM
2018	Entitled	An Application of Value Stream Mapping on Indonesia's Leather Craft Industries: A Case Study between Manding and Keparak Kidul
	Conference	The 3 rd International Conference on Indonesian Economy and Development (ICIED)
	Scope of study	Economy Development
	Date	Sept 18 - 19, 2018
	City, country	Jakarta, Indonesia
	Hosted by	University of Indonesia (UI) and Bank Indonesia (Central Bank of Republik Indonesia)
2017	Entitled	Development of Alliance Strategy Through Value Chain Analysis on Pucung, Keparak Kidul, and Manding Leather Craft SMEs in Special District of Yogyakarta
	Conference	International Conference on Management, Accounting, Business, and Entrepreneurship (ICMABE)
	Scope of study	Strategic Management
	Date	October 17 - 18, 2017
	City, country	Jakarta, Indonesia
	Hosted by	IPMI International Business School, University of Technology Malaysia (UTM), and Academia Society & Industry Alliance (ASIA)



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Evaluation of sustainability and technological management for Logistics 4.0

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Evaluation of sustainability and technological management for Logistics 4.0

Yu-Chung Tsao^{a,b}, Felix Arril Simbara Barus^a, Thuy-Linh Vu^{a,b} and Galuh Puspita Sari^c

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ABSTRACT

The evaluation of technology management and sustainability has become a challenging topic. As high technology firms apply new technologies, managers expect their organisational and sustainability performance to increase. However, sustainability issues are multidimensional and turn into vital concerns for managers. The purpose of this study is to evaluate the causal effect possibilities related to sustainability in which new technologies are applied for Logistics 4.0. This study provides the rationale for the causal effect, offers improvement schemes, and enriches academic literature. Using a fuzzy decision-making trial and evaluation laboratory, the proposed criteria were tested to generate suggestions on how managers would make the best practice and the most effective solutions. A case study of the automotive industry is conducted to test the validity of the proposal method. In conclusion, technology management has the greatest influence on sustainability.

ARTICLE HISTORY

Received 28 November 2023
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KEYWORDS

Sustainability; Technology management; Logistics 4.0; Fuzzy decision-making trial

1. Introduction

Balancing sustainability performance in manufacturing through the role of technology management has derived more consideration since Logistics 4.0, boomed. Sustainable development has been defined as the present generation's ability to fulfil their needs without jeopardising the success of the future generation's ability to satisfy theirs (Burton 1987); the technology management (TM) concept involves collaboration between humans and technology to do what people want, which is a systematic collection of techniques to organise the action of implementing knowledge to extend human activities and make specific products (Horwitch and Stohr 2012). A triple bottom line (TBL) concept addresses environmental issues, economic aspects, and social concerns (Jabbour et al. 2013) become common in today's business management. A TBL seeks to gauge a corporation's level of commitment to corporate social responsibility and its impact on the environment over time. With TBL, the business performance is not only measured by its economic, but also to consider sustainable production and environmental protection policies (Seuring and Müller 2008). There are several studies discussing the TBL of sustainable development in manufacturing organisations (Braccini and Margherita 2019; Sahu, Agrawal, and Kumar 2023; Yip, Zhou, and To 2023).

In addition, it is not easy to balance between environmental issues, economic aspects, and social concerns, especially for manufacturing in which the technology is changed every day with high

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Impacts of the fifth-generation technology on sustainability

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Impacts of the fifth-generation technology on sustainability

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ABSTRACT

Increasing interest in end users' reactions to fifth-generation technology has necessitated concepts that estimate the impacts of the acceptance and use of new technology. By combining the unified theory of acceptance and use of technology with the triple bottom line, this research aims to examine the impacts and acceptance of fifth-generation technology. We analyzed 695 data sets collected from Taiwanese manufacturing and healthcare organisations using structural equation modelling, a new factor-based analysis. We elucidate user attitudes and beliefs, and measure the possible impacts on both the perceived usefulness of and subjective norms regarding the acceptance and use of fifth-generation technology. The major contribution is to understand the users' acceptance of new technology. The results showed that the participants' perceptions and consciousness regarding fifth-generation technology affected sustainability in both manufacturing and healthcare organisations. The findings are important for academics and professionals who expressed interest in implementing the model proposed.

ARTICLE HISTORY

Received 5 September 2021

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KEYWORDS

Fifth-generation technology; unified theory of acceptance and use of technology; triple bottom line; manufacturing; healthcare; structural equation modelling with a new factor-based method

1. Introduction

The usefulness of fifth-generation (5G) technology as applied in organisations is an important topic; however, it should be noted that building and adapting a new information system requires a lot of time and money. A recent study (Taboada and Shee 2020) reported that 5G technology can generate positive benefits for organisations, such as reducing total costs, increasing product and service quality, improving the flexibility and responsibility of the organisation's supply chain, and improving customer service, which leads to sustainable performance. However, no empirical study has analyzed the effect of 5G.

In modern business, the application of 5G technology could revolutionise the manufacturing (Attaran 2021) and service industries (Thuemmler et al. 2018). Therefore, in measuring the impact of 5G technology on sustainability, manufacturing and healthcare organisations were chosen as the research subjects for this study. First, in the era of digitalisation, healthcare organisations are dealing with a new consumerization paradigm where patients are becoming more active players in their decisions and demanding more oversight in their service choices. These challenges are exacerbated by the high volume of health data and high expectations of data transparency, delivery, and safety. For instance, in the healthcare sector, several studies (Bailey et al. 2013; Benzidia et al. 2019; Lee, Chang, and Chao 2007; Pan and Pokharel 2007) reported that many crucial issues were related to patient safety, waiting times, interaction, communication, and procedure integration. This is

How energy efficiency, smart factory, and mass personalization affect companies in Industry 4.0

Abstract. The concept of industry 4.0 has significant potentials to enhance organizational performance so as to cope with industrial change and to ensure market competitiveness in the world coordinated by industrial and scientific organizations using technical, economic, and sociopolitical parameters. The objectives of this research are to investigate the effects of energy efficiency improvement, smart factory, and mass personalization on organizational performance; describe the causality between the independent and the response variables; develop a new model and build theories based on Partial Least Squares Structural Equation Model (PLS-SEM); and generate specific propositions for industrial practitioners to improve their organizational performance. The study validated and assessed the proposed model using discriminant validity, reliability of measures, item loadings, and convergent validity based on the data gathered from employees of various industrial organizations. This study found that energy efficiency improvement, smart factory, and mass personalization were key driving factors on organizational performance in industry 4.0.

Key words: Industry 4.0; Energy efficiency improvement; Smart factory; Mass personalization; Organizational performance

INTRODUCTION

Phenomena which appear in the real-world, especially in the industrial environment, and arise from the rapid development of technology have framed a new form of concept called the fourth generation of industrial revolution. This concept is commonly known as Industry 4.0 by scientists, governments, and industrial practitioners [1]. The term Industry 4.0 has created new chances that must be managed to positively affect both business and society, for instance, energy efficiency, manufacturer facilities, production system, labor fluctuation, and social aspects. Moreover, the concept itself will provide many scientific variations that can be developed in the industrial era of 4.0. For that reason, energy efficiency improvement, smart factory, mass personalization, and organizational performance were taken as the research indicators.

Currently, many managers are dealing with the challenges to assess the diversity of developments and concepts entailing industry 4.0, especially the effects of energy efficiency improvement, smart factory, and mass personalization on organizational performance. To capture this phenomenon, PLS-SEM was used as a method to summarize the information on the industrial environment in the form suitable for general modeling and the research findings would be based on the construction industrial practitioners' perceptions. Furthermore, there is limited empirical research that has been performed to evaluate the energy efficiency improvement, smart factory, and mass personalization that influence the organizational performance within and outside the organization.

THEORETICAL BACKGROUND AND RESEARCH FRAMEWORK

To elaborate the elements of Industry 4.0 and to provide reasonable statistical analysis diagrams and tables were used to present the data, this research took four indicators, namely energy efficiency improvement [2–8], smart factory [9–12], mass personalization [13–15], and organizational performance [16–19]. Subsequently, those indicators were computed simultaneously to develop framework (Figure 1) and hypotheses as follows.

- H1.** Energy efficiency improvement positively influences mass personalization.
- H2.** Energy efficiency improvement positively influences organizational performance.
- H3.** Smart factory positively influences energy efficiency improvement.
- H4.** Smart factory positively influences mass personalization.
- H5.** Smart factory positively influences organizational performance.
- H6.** Mass personalization positively influences organizational performance.

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Ir. Eric Wibisono, Ph.D., IPU

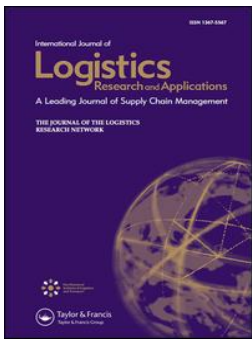
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Developing a framework for Industry 3.5 to strengthen manufacturer performance

Yu-Chung Tsao, Felix Arril Simbara Barus & Chien-Wei Ho

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Developing a framework for Industry 3.5 to strengthen manufacturer performance

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ABSTRACT

As no previous empirical research has focused on the domain of Industry 3.5 in terms of structural equation modelling development, this study aims to investigate the phenomenon of fit among several Industry 3.5 indicators and manufacturer performance. The concept of Industry 3.5 is relatively new and mainly involves creating a transition from Industry 3.0 to 4.0. In particular, this study analyses the several causal indicators of Industry 3.5 on manufacturer performance using covariance-based structural equation modelling. The manufacturer performance is evaluated from the extent of opportunities obtained by businesses, which is investigated using three indicators: digital decision-making, digital transformation, and total resource management. The results indicate that these are the key driving factors that determine the manufacturing performance in Industry 3.5.

ARTICLE HISTORY

Received 3 June 2021

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KEYWORDS

Industry 3.5; digital decision-making; digital transformation; total resource management; manufacturer performance; manufacturing

1. Introduction

The concept of Industry 3.5 is coined by Professor Chen in 2016 (Chien, Chou, and Yu 2016). This is the first strategic framework to be implemented under the Industry 3.5 concept in Taiwanese semiconductor manufacturing. Furthermore, the concept of Industry 3.5 becomes a general strategic framework that concatenates high-tech applications, such as Internet of Things, big data analytics, resource allocation, and optimisation, to build an advanced intelligent manufacturing system framework. This concept is also referred to as a hybrid strategy of Industry 3.0, 4.0, and disruptive innovations (Chien, Hong, and Guo 2017b, 2018). In 2020, this concept was extensively developed in terms of the following five factors: digital decision-making, smart supply chain, smart manufacturing, total resource management, and smart factory (Chien, Lin, and Lin 2020; Hsu, Chen, and Chien 2020; Jamrus, Wang, and Chien 2020; Ku, Chien, and Ma 2020).

However, despite the increasing agreement regarding the Industry 4.0 concept, it remains unclear. The framework scenarios for Industry 4.0 need to be further scrutinised and rebuilt, particularly under the conditions of organisational slack (Näslund and Näslund 1964; Geiger and Makri 2006; Stan, Peng, and Bruton 2014), dynamic capabilities (sensing, seizing, and transforming/continuous renewal) (Teece 2007) and openness (Mink et al. 1994). For instance, the recent research (Prause and Atari 2017) conducted on Estonia high-tech manufacturing revealed an access shortage to process data links, making it improbable to examine, manage, and enhance all business processes. Thus, the quality of data transmission and exchange in system settings is not suitable for

A Logic Model Development for Planning Program in Indonesia SMEs. Case study: *Pucung, Manding, and Keparakan Kidul* Leathercraft Industries

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Abstract

The enhancement of global and domestic competition will encourage companies to improve their product quality, features, and services continuously. In this research, the objective is to develop the small and medium business (SMEs) activities flow in accordance to fulfill they consumer needs using logic models. Typically, the business functions inside SMEs managed their own segments as stand-alone components and only concentrate on achieving local objectives without consideration of the other effects. This approach, mostly, resulted in conflicts and the company's ability to provide good products and services value to consumers Which would erode gradually, resulting in a loss of market share and profitability

Keywords

SMEs, logic models, logistic, product planning, leathercraft

Biography

Galuh Puspita Sari is a lecturer at Politeknik ATK Yogyakarta (Ministry of Industry, Indonesia) since 2011 until present. She completed her magister and bachelor's degree at Institut Teknologi Sepuluh Nopember Surabaya (ITS). She is interested in SMEs development, product design, and semiotic.

Felix Arril Simbara Barus is a Ph.D. candidate at National Taiwan University of Science and Technology. He earned an MBA in Production and Operations Management from the Universitas Gadjah Mada in Indonesia. His areas of interest are Production and Operations Management, Economics and Statistics, Logistics and Supply Chain Management, Inventory Management, and Quality Control.

Diana Ross Arief completed her master's degree at Taiwan Tech (NTUST). She is currently lecturing at Politeknik ATK Yogyakarta as an Assistant Professor in Rubbber and Plastic Processing Technology. Her topics of interest include: TEFL, SMEs, Interpretation and linguistics.



IEOM Society International

**The Second Asia Pacific Conference on
Industrial Engineering and Operations Management**
Surakarta, Indonesia, September 13-16, 2021, Host: Universitas Sebelas Maret (UNS)

Certificate of Presentation

This is to certify that

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Politeknik ATK Yogyakarta (Indonesia Ministry of Industry), Jalan

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Glugo, Panggunharjo, Sewon, Bantul, Yogyakarta, Indonesia.

Felix Arril Simbara Barus

National Taiwan University of Science and Technology, Taipei City, Taiwan (R.O.C.)

Delivered an Oral Presentation entitled "A Logic model development for planning program in Indonesia SMEs - Case study: Pucung, Manding, and Keparakan Kidul leathercraft industries" at the Second Asia Pacific Industrial Engineering and Operations Management Conference Virtually via Zoom.

Dr. Ir. Wahyudi Sutopo, ST., M.Si, IPM
Conference Chair
Professor, Department of Industrial Engineering
Vice Dean for Human Resources, Finance, and
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INTISARI

Saat ini, UMKM kerajinan kulit DIY sedang menghadapi permasalahan dalam pengelolaan persediaan bahan bakunya. Persediaan bahan baku merupakan salah satu kunci bagi pelaku usaha untuk menunjang kelancaran proses produksi dan keberlangsungan bisnis, baik dalam perusahaan besar maupun perusahaan kecil. Kesalahan perkiraan dalam menentukan besarnya persediaan bahan baku akan mempengaruhi keuntungan perusahaan.

Penelitian ini diawali dengan identifikasi model pengelolaan persediaan bahan baku apa yang diterapkan masing-masing UMKM kerajinan kulit DIY dan bagaimana kinerja masing-masing model pengelolaan persediaan tersebut. Penelitian ini dilakukan dengan menggunakan teknik kualitatif yang lebih diarahkan pada jenis penelitian eksplorasi. Penelitian kualitatif eksplorasi melalui studi kasus adalah pendekatan di mana peneliti mengeksplorasi suatu kasus atau beberapa dari waktu ke waktu, secara terperinci, pengumpulan data yang mendalam. Tujuan dari penelitian ini adalah untuk menginvestigasi dan mengidentifikasi permasalahan serta memberikan rekomendasi solusi dari pengelolaan penyediaan bahan baku. Melalui identifikasi model-model pengelolaan bahan baku maka dapat diketahui berapa jumlah pemesanan melalui perhitungan jumlah persediaan pada tingkat yang dikehendaki untuk memberikan hasil yang optimal di dalam pengelolannya.

Hasil dari penelitian yang telah dilakukan adalah terdapat perbedaan model pengelolaan persediaan bahan baku berdasarkan asumsi-asumsi dalam model *Economic Order Quantity* (EOQ), *Production Order Quantity* (POQ), dan kuantitas diskon. UMKM kerajinan kulit di Keparakan Kidul dan Manding menggunakan pendekatan metode EOQ sedangkan UMKM kerajinan kulit Pucung menggunakan pendekatan model POQ. Jumlah persediaan optimal bagi UMKM kerajinan kulit di Keparakan Kidul 817 *feet* dan pemesanan kembali dapat dilakukan ketika persediaan tinggal 4.268 *feet* dengan total biaya persediaan minimal per tahun sebesar Rp1.551.470.068 dan sebaiknya pemesanan kembali dilakukan pada saat persediaan bahan baku tinggal 5.335 *feet* dengan penambahan persediaan pengaman untuk 1 hari, bagi UMKM kerajinan kulit di Manding jumlah optimal unit per pesanan pada saat 327 *feet* dan pemesanan kembali dapat dilakukan ketika persediaan bahan baku tinggal 6.216 *feet* dengan total biaya persediaan minimal per tahun sebesar Rp755.142.370,68 dan sebaiknya pemesanan kembali dilakukan pada saat persediaan bahan baku tinggal 6.660 *feet* dengan penambahan persediaan pengaman untuk 1 hari dan bagi UMKM kerajinan kulit di Pucung dengan jumlah persediaan secara terus-menerus digunakan atau dibentuk selama 1 tahun dengan hasil perhitungan jumlah optimal unit per pesanan sebesar 5 lembar dengan total biaya persediaan minimal per tahun sebesar Rp4.862.098,31.

Kata kunci: Pengelolaan Persediaan Bahan Baku, *Economic Order Quantity* (EOQ), *Production Order Quantity* (POQ)

ABSTRACT

Right now, SMEs DIY leather craft was encountering problems in the management of raw material inventory. Inventories of raw materials is one of the key for businesses to support the production process and business sustainability in both large companies and small companies. Error estimates in determining the supply of raw materials will affect the company's profits.

This study begins with the identification of raw material inventory management model what is applied to each SME leather craft DIY? and how the performance of each model of the inventory management? This research was conducted using qualitative technique that is more focused on the type of exploratory research. Exploratory qualitative research through case studies is the approach in which researchers are exploring a case or some from time to time, detailed, in-depth data collection. The purpose of this study was to investigate and identify problems and provide recommendations on the management solution of raw material supply. Through the identification of models of management of raw materials, it can be known how many orders through the calculation of the amount of inventory at the desired level to provide optimal results in its management.

The results of the research that has been done is that there are differences in raw material inventory management model based on the assumptions in the model of Economic Order Quantity (EOQ), Production Order Quantity (POQ), and quantity discounts. SMEs leather in Keparakan Kidul and Manding method approach, while SMEs leather EOQ Pucung approach POQ models. Total inventories for SMEs craft optimal skin in Keparakan Kidul 817 feet and reordering can be done when the supply is 4,268 feet with a minimum total inventory cost per year for backorders Rp1.551.470.068 and should be done at the time of supply of raw materials to stay 5,335 feet with the addition of safety stock for 1 day, for SMEs leather craft in Manding optimal number of units per order at the time of 327 feet and reordering can be done when the supply of raw materials to stay 6,216 feet with a minimum total inventory cost per year of Rp755,142,370.68 and should the buyer was performed at the time of supply of raw materials to stay 6,660 feet with the addition of safety stock for 1 day, and for SMEs leather crafts in Pucung with inventory counts continuously used or formed during the first year with the results of the calculation of the optimal number of units per order for 5 pieces and the total cost minimal inventory per year for Rp.4.862.098,31.

Keywords: Raw Material Supply Management, Economic Order Quantity (EOQ), Production Order Quantity (POQ)

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An Application of Value Stream Mapping on Indonesia's Leather Craft Industries: A Case Study between Manding and Keparak Kidul*

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Abstract

One of Indonesia's industries which has a big potential to develop is the footwear industries because they have a large market share. However, most of the supply chain management approaches in the footwear industries are still traditional. Hence, the issues appeared from the traditional supply chain management are ineffective both in the production process and resources usage. This research is aimed to optimize the time of production process through Value Stream Mapping (VSM) analysis by using qualitative exploratory method. In summary, by using VSM to analyze the current footwear production map in Manding, it is expected to identify and resolve over processing activity by reducing cycle time about three times than before. Similarly, the use of VSM in the case of Keparak Kidul is expected to reduce overproduction process time up to half by working the smaller batch size and creating more reliable processes

JEL Classification Codes: D22; L23

Keywords: Value Stream Mapping (VSM), current state map, overprocessing, overproduction

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DEVELOPMENT OF ALLIANCE STRATEGY THROUGH VALUE CHAIN ANALYSIS ON PUCUNG, KEPARAKAN KIDUL, AND MANDING LEATHER CRAFT SMES IN SPECIAL DISTRICT OF YOGYAKARTA

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ABSTRACT

A management problem towards SMEs in Yogyakarta is the traditional stand-alone component that concentrates on achieving local goals without considering to the effects on other components. This approach results in a conflict between functions, missed objectives throughly, and reliance on cost systems because management is designed only to minimize local costs. This study aims to develop an alliance strategy through value chain analysis using qualitative exploratory methods. From the result of value chain analysis it was found that the ratio of margin in Pucung is 50%, Keparak Kidul is 300%, and Manding is 50,26%. The suitable strategy which may be implemented by leather craft SMEs between Keparak Kidul Kidul and Manding is vertical complementary strategies while leather craft SMEs in Manding and Pucung areas may perform a horizontal complementary alliance strategy. In conclusion, leather craft SMEs can take advantage of existing opportunities through value chain analysis againts the available resource potential and the development of appropriate business strategies to improve access to productive resources.

Keywords: Leather craft SMEs, value chain analysis, alliance strategy

INTRODUCTION

The growth of Indonesia's leather and footwear industries in the first quarter of 2017 increased by 7.41 percent compared to the first quarter of 2016 (q to q). Leather products from Indonesia were ranked 5th among world's exporters (China, India, Vietnam and Brazil) and have 4.4 percent of market share in the world. One of leading leather craft SMEs is located in Special District Yogyakarta, precisely in Pucung, Keparak Kidul, and Manding. Today, leather craft SMEs faced challenges to develop businesses to grow into large-scale enterprises and become more efficient. At the time of researching leather craft SMEs in Yogyakarta, researcher have limited availability on collecting data and limitations for shaping the concept of strategy selection so the researcher conducts explorative qualitative research with the aim of obtaining sufficient data and information in analyzing each value chain activity and assume that the results of the strategy selection framework will not always be true and correct, but the results of this study is expected to provide a competitive advantage for leather craft SMEs in Yogyakarta. Through this research it can be identifying the value chain activity that it can take advantage of existing opportunities from potential available resources and develop appropriate business strategies to improve access to productive resources. The previous list of relevant studies used in this study is presented at table 1.

Tabel 1. Related Work

No	Author	Year	Publication	Contents
1	Concrad den Hertog	2014	Journal of Business Strategy, Vol. 35 Iss 5 pp. 43-48.	Better value chains: a matrix for competitive advantage
2	Schiller, D	2011	Geographische Zeitschrift, 185-201	Upgrading strategies of firms from emerging economies in global value chains: three cases from the electronics industry in Hong Kong.
3	Virendra Pathak dan Kavita Pathak	2010	Management in Education 24 (4) 166-171	Reconfiguring the higher education value chain
4	Khursheed A. Butt	2005	Vision-The Journal of Business Perspective, Vol. 9, No.3. July-September 2005	Value chain management: a small industry perspective
5	David Barnes	2002	Journal of Small Business	The manufacturing strategy formation process in