



Web-Based Knowledge Management System Design on Micro, Small Medium Enterprise (MSMEs) Reog Ponorogo

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Abstract. Reog is one of the famous arts in Ponorogo. Reog Ponorogo is held not only to entertain the public, but also for ritual ceremonies. Reog craftsmen who are members of the Reog MSME business experienced many obstacles, especially during the covid-pandemic in obtaining raw materials, production, and marketing. This study aims to design a web based Reog MSME Knowledge Management System. The system will provide all the information needed, from Reog history to marketing. KMS was created to help craftsmen and public to get information related to Reog information. The feature of the KMS contain of: Reog, Production Technology, Reog Craft Result, and Marketing. The method used for system analysis of KMS uses the Unified Modeling Language (UML). The KMS system may be implemented using the PHP-MySQL programming language based on the knowledge map that has been created because of interviews with Reog Ponorogo specialists, the tourist service, artisans, and MSME players. The results of the research are analysis documents and design documents which contain use cases and interface designs from web-based Knowledge Management System on MSMEs of Reog Ponorogo.

Keywords: Web Design, Reog Ponorogo, Web-Based Knowledge Management System

1 Introduction

Reog is one of the arts that originated and flourished inside Indonesian civilization, namely in Ponorogo. Reog Ponorogo art is now flourishing not only inside Indonesia, particularly Ponorogo, but even outside the island to other countries [1]. The Suryo Ngalam version and the Bantarangin version, both of which have their own historical philosophies, are the two main versions of the development of Reog Ponorogo in society [2], [3]. The principal character, singo barong, is represented by a giant mask in the form of a lion's head topped with a peacock in the Reog Ponorogo performance, while the number of characters varies between the two variants of the Reog Ponorogo art [4].

The high number of viewers at each performance demonstrates how quickly the Bantarangin version of Reog Ponorogo [2] is expanding. In addition, several Reog groups are presently being created outside of Ponorogo, beyond the island, and there are even

Reog Ponorogo groups abroad [5]. The dance storyline and the presence of numerous characters other than singo barong who made the Bantarangin version of Reog Ponorogo [6] more engaging, such as Prabu Klonosewandono, Patih Bujangganong, Warok Ponorogo, and a horseman by the name of Jathil, were some of the factors that drew in the large number of viewers.

Reog Ponorogo sets, including barongan dadak merak, klonosewandono and bujangganong masks, bamboo horses (eblek) and jathil clothes, warok clothes and shirts, gamelan Reog Ponorogo, and so on, are made and sold by micro, small, and medium enterprises (MSMEs) [7], [8] due to the large number of spectators, both inside and outside of Ponorogo. A rise in sales of Reog Ponorogo crafts often takes place around Grebegsuro festivities and the Reog Ponorogo National Festival [9]. Currently, consumers of Reog Ponorogo crafts come from beyond the city, outside the island, and even from overseas.

The fact that Reog Ponorogo SMEs do not maximize online advertising and sales via Reog Ponorogo e-commerce is one of the crafts' many issues, even though they have been doing well in the market [10]. Additionally, the price of Reog Ponorogo handcraft goods would be exorbitant due to high manufacturing costs and a lack of knowledge about excellent and affordable raw materials [11]. In attempts to boost sales of Reog Ponorogo Crafts MSME items, the absence of knowledge about Reog Ponorogo, from history to numbers to the staging schedule, is also a concern [12].

The Reog Ponorogo craftspeople have received digital marketing training as part of efforts to maximize promotions and sales in the internet world [13]. For Reog Ponorogo craftspeople and MSMEs to advertise and sell handicrafts online, particularly during the COVID-19 epidemic and in the present new normal age, knowledge of digital marketing is vitally required [14]. One of the ways an entrepreneur tries to boost sales and revenue is by promoting and selling products online. A knowledge management system (KMS) that makes it simpler for business owners to manage knowledge to boost online sales performance has been made possible by the growth of information technology [15]. One of the improvements to enhance business performance from leaders to workers is the knowledge management system (KMS), which integrates information technology and knowledge management procedures [16].

Research on knowledge management systems (KMS) to aid micro, small, and medium-sized businesses (MSMEs) in Bekasi [17]. This study was done because it is crucial for MSMEs to see knowledge as a strategic advantage if they are to advance. Additionally, the Knowledge Management System (KMS) information system is utilized to store and make use of the knowledge that MSMEs hold to solve their challenges [18]. According to KMS study [19] to improve the competitiveness of MSMEs, an effective communication and marketing strategy is required to draw in and boost the engagement of the innovative players themselves and enable efficient collaboration and knowledge transfer. For all things linked to Reog Ponorogo, this study created a Knowledge Management System (KMS), which was previously nonexistent and could be utilized as a resource for artists, craftspeople, MSMEs, and Reog Ponorogo lovers.

2 Method

2.1 Knowledge

The person is always the source of knowledge [20]. Knowledge is the process through which past events and knowledge are translated so that each person may comprehend the present and the future [21]. There are two kinds of knowledge: implicit and explicit. Tacit knowledge is information gleaned from professionals or professionals with expertise. Explicit knowledge is information that is gleaned through certain media [22]. There are four different types of knowledge conversion procedures [20]. You can see the knowledge conversion model in Fig. 1.

	Tacit Knowledge to Explicit Knowledge	
Tacit Knowledge from	Socialization	Externalization
Explicit Knowledge	Internalization	Combination

Fig. 1. The Nonaka and Takeuchi Model Of Knowledge Conversion

Fig. 1 shows There are four modes of knowledge conversion. From tacit knowledge to tacit knowledge, called by the process socialization. From tacit knowledge to explicit knowledge, called by the process of externalization. From explicit knowledge to explicit knowledge, called by the process of combination. From explicit knowledge to tacit knowledge, called by the process of internalization.

2.2 Knowledge Management

Understanding is the most important asset for any person, particularly for businesses, organizations, or other legal entities. This will make any business, organization, or company more successful by fostering effective knowledge management. Knowledge management may be defined as a process that assists organizations in identifying, locating, organizing, storing, and sharing critical information that is a key asset of such organizations or businesses [23].

2.3 KMSLC (Knowledge Management Life Cycle)

The Knowledge Management Life System (KMSLC) is one of the techniques for creating a knowledge management system [24]. The steps of this methodology are Evaluate Existing Infrastructure, Create the KM Team, Knowledge Capture, Create the KM Blueprint, Verify and Validate the KM System, Implement the KM System, Manage Change and Reward Structures, and Post System Evaluation. Fig. 2 shows the KMSLC phases. Fig. 2 represents a phase of KMSLC, start from evaluate existing infrastructure, and lastly is the post-system evaluation.

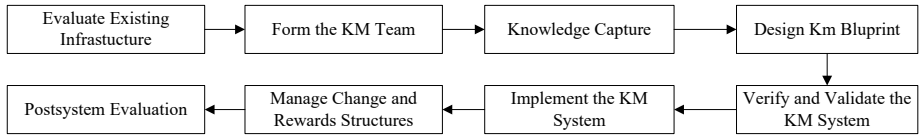


Fig. 2. Phase of Knowledge Management Life System (KMSLC)

2.4 UML (Unified Modeling Language)

System design blueprints may now be created in any language using UML (Unified Modeling Language) [25]. System developers may produce blueprints or designs in a standard format that is simple to grasp and equipped with an effective method for sharing and discussing the designs that have been generated thanks to UML, which offers a visual modeling language [26]. Use case diagrams, class diagrams, sequence diagrams, and behavioral state machine diagrams are the four UML diagram approaches that predominate object-oriented projects out of 14 different diagram styles [27].

3 Result and Discussion

The phases in this research are based on the KMSLC stages. But this post will go through everything from forming the KM Team to knowledge capture to designing the KM Blueprint, beginning with the step of evaluating the current infrastructure.

3.1 Evaluate Existing Infrastructure

Currently, a problem analysis is being done since it is still challenging to locate comprehensive information on Reog, from its history to its MSME handcraft items and their marketing on a single platform. The information that is now available is dispersed, including a web that has Reog's history, information on its MSME goods being given on many websites, and product promotion occurring on social media.

Considering the issues at hand, this study will create a KMS for Reog MSME Products that includes information on the company from the upstream to the downstream, from its history to its marketing efforts.

Table 1. Knowledge Management Team

No	Role	Task
1.	Knowledge source	Prepare knowledge related to the history of Reog, figures in Reog, Reog performances, industrial technology information about Reog MSME products, information on Reog handcrafts, information on the marketing results of Reog crafts.
2.	Knowledge engineer	Transforming the knowledge possessed by experts into the KMS system for Reog MSME Products.
3.	Designer and software engineer	Designing and building KMS Reog MSME Products.

3.2 Form the KM Team

A Knowledge Management Team was established at this point and oversaw creating KMS Reog MSME Products. Table 1 shows the Knowledge Management team.

3.3 Knowledge Capture

The process of collecting knowledge is now underway. Fig. 3 shows the Knowledge Capture Knowledge Management System (KMS) on MSMEs of Reog Ponorogo. The process socialization: Conducting interviews and discussions with the tourism office, artisans and MSME actors. The process of externalization: Make documentation of interview results in the form of a report. The process of combination: Knowledge is saves in the Reog MSME Product KMS database. The process of internalization: Checking documents.

	Tacit Knowledge to Explicit Knowledge	
Tacit Knowledge from Explicit Knowledge	Conducting interviews and discussions with the tourism office, artisans and MSME actors	Make documentation of interview results in the form of a report
	Checking documents	Knowledge is saves in the Reog MSME Product KMS database

Fig. 3. Knowledge Capture Knowledge Management System (KMS) on MSMEs of Reog Ponorogo

Interviews with the tourist office, craftsmen, and MSME players provided tacit information; on the other hand, explicit knowledge was gleaned through the tourism office's official website, books, and records. Table 2 displays the knowledge infrastructure for KMS MSME products.

Table 2. Knowledge Infrastructure

No	Knowledge	Tacit	Explicit
1.	Reog		
	History Reog	√	√
	The characters in Reog	√	
2.	Production Technology		
	Showing Reog		√
	Raw Material	√	
3.	Reog Handicrafts		
	Craftsmen	√	
	Supplier	√	

3.4 Design KM Blueprint

Knowledge mapping is being done presently for knowledge. Fig. 4 shows the Knowledge Mapping Knowledge Management System (KMS) on MSMEs of Reog Ponorogo It consists of four main parts, there are Reog, Production technology, Reog handicrafts, and Marketing.

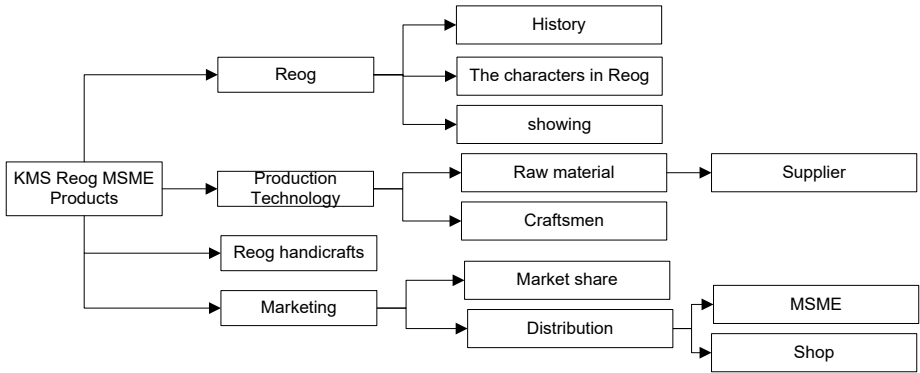


Fig. 4. Knowledge Mapping Knowledge Management System (KMS) on MSMEs of Reog Ponorogo

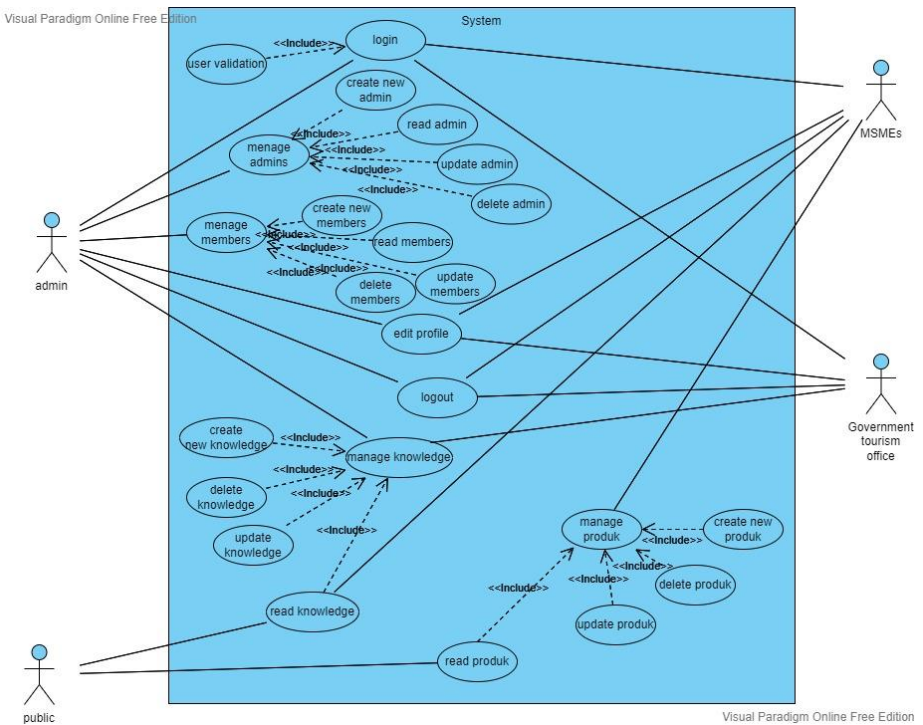


Fig. 5. Use case diagram Knowledge Management System (KMS) on MSMEs of Reog Ponorogo

Fig. 5 shows the KMS use case diagram for UMKM Reog Products. The system must then be designed in accordance with the necessary functionality. There are four players in the Reog UMKM Product KMS: the administration, the tourist office, UMKM, and the community.

The KMS system may be implemented using the PHP-MySQL programming language based on the knowledge map that has been created because of interviews with Reog Ponorogo specialists, the tourist service, artisans, and MSME players. Fig. 6 displays the outcomes of the KMS UMKM Reog Ponorogo user interface design implementation.

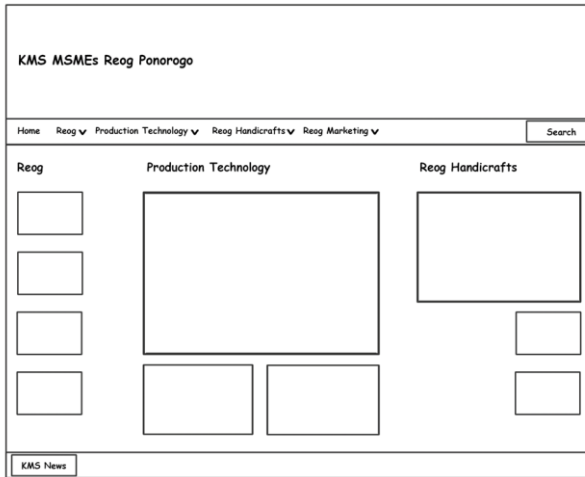


Fig. 6. Interface designs from web-based Knowledge Management System (KMS) on MSMEs of Reog Ponorogo

Fig. 6 shows the home menu, Reog, Production Technology, Reog Handicrafts, and Marketing as the website's primary navigational options for the KMS UMKM Reog Ponorogo. These menus follow the guidelines set out in the KMS UMKM Reog Ponorogo knowledge map.

The Reog menu is the first major menu, and inside it is submenus for Reog Ponorogo History, Figures in Reog Ponorogo, and the Reog Ponorogo Performance Schedule. The Reog Ponorogo Performance Schedule may be found on the Culture, Tourism, Youth and Sports District Office Ponorogo website.

Production Technology is the second main menu. Within this menu, there are two sub-menus: Reog Ponorogo Craftsmen, which contains complete profiles of Reog Ponorogo craftsmen, and Raw Materials, which contains raw materials for making Reog Ponorogo handicrafts. Within the Raw Materials sub-menu is another menu, titled Raw Material Suppliers. creating crafts with reog ponorogo. The Reog Craft Results menu, which is the third menu on the newly constructed KMS UMKM Reog Ponorogo website, displays many kinds of crafts associated with Reog Ponorogo.

The fourth option is titled marketing and includes two submenus: Reog Ponorogo handcraft distribution and Market Share. The market share section lists locations that order and purchase Reog Ponorogo crafts both within and outside of Ponorogo. A menu for SMEs and Reog Ponorogo handcraft stores may be found in the second submenu, which is titled "Distribution of Reog Ponorogo Handicraft Products."

4 Conclusion

The KMS system, which was created using the Unified Modeling Language (UML), has supplied all information connected to Reog Ponorogo, from history, craft items, to marketing, based on the findings of Knowledge Mapping KMS Reog Ponorogo MSME products. The analysis and design materials from this study's findings include use cases and interface designs for the web-based Knowledge Management System (KMS) on Reog Ponorogo UMKM Products. In line with the KMS Knowledge Mapping for Reog Ponorogo MSME Products, which comprise Reog, Production Technology, Reog Handicrafts, and Marketing, the analysis's findings demonstrate that even the KMS features that have been constructed are comprehensive. To do more research, it is creating an Android-based KMS for Reog Ponorogo MSME Products to make them more mobile and since Android is currently the smartphone OS with the most consumers.

Acknowledgments. This study was supported by the Directorate of Research and Community Service (DRPM) of the Ministry of Education, Culture, Research, and Technology of the Republic of Indonesia via the PDUPT grant program, with contract number: 148/VI.4/PN/2022 on 12 May 2022.

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