Implementation of UCD Method for Designing Web Marketplace Sacrificial Cattle Sales in East Java

by Endra Rahmawati

Implementation of the *User-Centered Design* (UCD) Method for Designing Web Marketplace of Sacrificial Cattle Sales in East Java

ABSTRACT

This study aims to create a user interface design for the Designing Web Marketplace of Sacrificial Cattle Sales in East Java that can help farmers and customers in the process of selling cattle directly without limited territory. This is because the sacrificial cattle sales process is still conducted conventionally and the number of transactions tends to increase from year to year. To deal with these problems, an alternative solution is needed that can create a Web Marketplace interface design that is designed using the User-Centered Design (UCD) method, focusing on the user's primary needs. This method was chosen because it focuses on the user's goals, characteristics, and workflow in the design process. How the system can be understood and used by users is a top priority in this web design and involves users in designing the marketplace web interface. Therefore it is very suitable for designing a website that is simple and easy to use. The design of the Web Marketplace of Sacrificial Cattle Sales has four main features namely Promotion of Sacrificial Cattle, Online Sacrificial Cattle Bookings (Direct Purchases or Livestock Care Services), Payment Confirmation, and Sacrificial Cattle Contributions for Collective Purchases or in groups. The results of testing using usability testing show that 87.3% of users can accept the design of the interface from the Web Marketplace of Sacrificial Cattle Sales. On the other hand, the results of 5-second testing can give a good impression of customer interest, especially in the design of the sacrificial cattle sales promo page.

1. Introduction

The Indonesian Ministry of Agriculture estimates that the demand for purchasing sacrificial animals from year to year tends to increase by around 5-10% from the previous year [1]. Various sales promotion in the process of buying and selling sacrificial animals to meet the needs of the community, been conventional as well as modern and has been adapted to technological developments [2]. Some conventional farmers or breeders still do promotions by placing advertisements on the side of the road, word of mouth or buyers come directly to the breeders' cages to be able to choose quality sacrificial animals. This conventional promotion method still causes many problems including sacrificial animal products sold which are not following the advertisements, sales without clear information, and only pursue profit [3].

Marketing can be done conventionally or using digital technology following the current culture of society [4]. Both of these methods can increase the profits of farmers as well as to increase the selling

power of cattle in the market [5]. With the development of marketing using digital technology following the current culture of society, it was considered more effective in terms of disseminating information about a business in all fields, including marketing a livestock company in Garut, West Java, such as a company called PT. Lembu Besar Sejahtera (LBS) [6], Cattle Sales in East Nusa Tenggara (NTT), and several breeder partners in East Java [7][8].

Fulfilling the needs of sacrificial animals only occurs when approaching the Eid Adha event only. The increasing needs of the community have an impact on the treatment process cattle in large numbers, so few breeders have a storage partner that can take care of the cows nearby until it is ready to be used as sacrificial animals following a predetermined standard [7] [9]. However, on the other hand there are also obstacles when buyers want to buy sacrificial cattle in groups. It is also the seller's responsibility to find customers who are willing to buy sacrificial cattle in groups. If it does not succeed in getting a customer, then the possibility of sacrificial cattle is not sold and the breeder will suffer losses. As a result, farmers do not have a competitive advantage and are unable to compete with the market [10].

The business process is still carried out conventionally and the results cannot be maximized. This is because the market reach and prices of livestock only apply to that region. The sacrificial cattle sales process still has the potential to be further developed by implementing information system solutions. Therefore, this research proposes making the user interface design from the web marketplace as the first step in implementing sacrificial cattle marketing information system solutions.

To deal with these problems, an alternative solution is needed that can create a Web Marketplace interface design that is designed using *the User-Centered Design* (UCD) method, focusing on the user's primary needs. The design of the Web Marketplace of Sacrificial Cattle Sales has four main features there is Promotion of Sacrificial Cattle, Online Sacrificial Cattle Bookings (Direct Purchases or Livestock Care Services), Payment Confirmation, and Sacrificial Contributions for Collective Purchases or in groups. The design of this application helps the makers of the application along with the sellers of cattle herds to be able to sell sacrificial cows directly to end buyers in the surrounding area and increase the competitiveness of farms [11].

2. Method

Stages of Research Methods Application of the *User-Centered Design* (UCD) Method on the Web Marketplace of Sacrificial Cattle Sales in East Java can be seen in Figure 1. The research began with a survey and analysis process that had been carried out previously, supplemented by interviews and requests for opinions from cattle farmers and customers of sacrificial cattle, especially cows in Ngawi Regency, Mojokerto Regency, and Surabaya City, East Java. At the stage of the research method, 5 stages must be carried out, including:

a. User Requirement Analysis.

Users of the Web Marketplace of Sacrificial Cattle Sales in East Java consist of website admin as the main user, cattle seller, breeder partner as cow care service partner, and sacrificial cattle customer.

b. Functional Requirement Analysis.

The Functional Requirement Analysis of Web Marketplace of Sacrificial Cattle Sales are as follows:

- Data Management of Farmer Masters / Cattle Sellers, Farmer Partners, and Sacrificial Cattle customers.
- Promotion of Sacrificial Cattle with Sacrificial Catalog.
- Recording of Sales Transactions in 2 ways, namely Direct Sales or Sales Inquiry System Animal Care Services.
- Individual or Collective / Group Sacrificial Cattle Sales Transactions.

Commented [ENR9]: a new paragraph has been added to discuss the relationship of the problem and the solution chosen

Commented [WU10]: Try to recheck, ucd is not the solution for all the problems mentioned above. There is a gap between problem and solution chosen in the paper.

Commented [WU11]: Novelty : In myopinion, there have been many papers discussing about the implementation of user centered design, but few of them includes sacrificial animal market space as research objects. For that reason, novelty is acceptable.

- Payment and confirmation, can be done by Cash (coming directly to the Farmer) or Bank transfer.
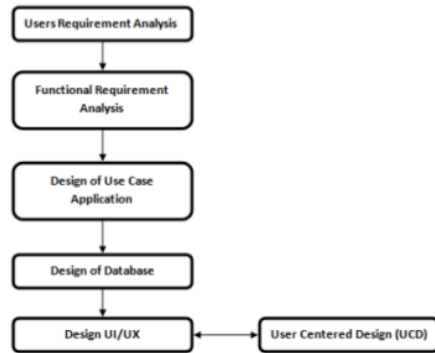

Figure 1. Research Method.

c. Design of Use Case Application.

The design of the Use Case Web Marketplace will use the UML (Unified Modeling Language) design and Architectural Design of the Web Marketplace of Sacrificial Cattle Sales in East Java.

d. Design of Databases.

Database Design will be described in the *Entity-Relationship Diagram* (ERD).

e. Design UI/UX.

Display Interface marketplace website consists of coloring, the use of words and language, use interactive buttons, graphics, menus, and icon buttons that are used, as well as the design of the input/output interface [12]. As for the technical quality, it can be seen from the side of website operation, seller/buyer response, website security, website features, and website marketplace trial results. Interface Design uses the concept of *User-Centered Design* (UCD) which will focus on user requirements[13][12][14].

The stages of the design interface use the User-Centered Design method which can be done in four phases [15][16], including :

1. **Specify the context of use**, this phase is to identify the people who will use the web marketplace of Sacrificial Cattle Sales and can be done by the interview process. The users are the breeders, breeder partners, and customers of the web marketplace.

2. **Specify requirements**, can be done by creating a table of user requirements as user goals and functional requirements of the web marketplace based on the result of user interview and user persona. The analysis process that had been carried out previously, supplemented by interviews and requests for opinions from cattle farmers and customers of sacrificial cattle, especially cows in Ngawi Regency, Mojokerto Regency, and Surabaya City, East Java.

3. **Create design solutions**, a stage for designing a web marketplace interface can be a mockup/wireframe/prototype of that web marketplace based on the element and criteria in the customer journey map.

> **Commented [WU12]:** Since UCD is the highlight method used in the paper, the writer needs to be more specific on how this method is used

4

4. **Evaluate designs**, can be done by distributing questionnaires in the form of usability testing and collecting suggestions and opinions from the prototype of the web marketplace.

> **Commented [ENR13]:** how the stages and process details of UCD methods already described in the paragraph

10 Result and Discussion

3.1 User Requirement Analysis

The user requirement analysis of Designing Web Marketplace of Sacrificial Cattle Sales can be seen in Table 1. User identification is divided into 4 roles that have each function in the system for Designing Web Marketplace of Sacrificial Cattle Sales.

Table 1. Table of User Requirements

No	Users	Data Requirement/Information
1.	Website Admin	• Master Data of Breeders (Sacrificial Cattle Sellers) • Master Data of Customers (Sacrificial Cattle Buyer) • Master Data of Farmer Partners (Animal Care Services) • Master Data of Regional and Sacrificial Cattle • Periodic Reports on Individual or Collective / Group Sale of Sacrificial Cattle • Periodic Reports on Animal Delivery by Direct Send or Animal Care Services System. • User Access Rights Settings. • Periodic Reports of Payment and confirmation, can be done by Cash or Bank transfer.
2.	Breeders (Sacrificial Cattle Sellers)	• Sacrificial Cattle catalog. • List of Farmer Partners. • List Transactions of Individual or Collective / Group Sale of Sacrificial Cattle. • List of Animal Delivery by Direct Send or Animal Care Services System. • Payment Confirmation of Sacrificial Cattle. • Delivery Status of Sacrificial Cattle.
3.	Customers (Sacrificial Cattle Buyer)	• Sacrificial Cattle catalog. • List of Breeders (Sacrificial Cattle Sellers) • History of Sacrificial Cattle. • Payment Confirmation of Sacrificial Cattle. • Delivery Status of Sacrificial Cattle.
4.	Farmer Partners	• Approval Confirmation of Animal Care Services. • List of Customers (Sacrificial Cattle Buyer) • List of Breeders (Sacrificial Cattle Sellers) • History of Sales Transaction with Animal Care Services System.

3.2 Functional Requirement Analysis

The Functional Requirement for Designing Web Marketplace of Sacrificial Cattle Sales in East Java can be seen in Table 2. There are 9 functional needs obtained from the process of analyzing and identifying problems that have been done previously and the results of interviews and requests for opinions from cattle farmers and customers of Sacrificial Cows who are in the areas of Mojokerto Regency, Ngawi Regency, and Surabaya City.

Table 2. Table of Functional Requirement.

5

No	Functional Requirement	Use Case Code
1.	Data Management of Breeder Masters, Customers, Farmer Partners, Regions, and Website Admins.	UC01
2.	Registration and User Access Rights Settings.	UC02
3.	Check Sacrificial Cattle Catalog.	UC03
4.	Place Order on Transactions of Individual or Collective / Group Sale of Sacrificial Cattle.	UC04
5.	Place Order on Animal Delivery by Direct Send or Animal Care Services System.	UC04
6.	Payment and confirmation, can be done by Cash or Bank transfer.	UC05
7.	Notification of Delivery Status for Sacrificial Cattle.	UC06
8.	Approval of Farmers Partner for Animal Care Services System.	UC07
9.	Periodic Reports and History of Transaction Sacrificial Cattle Sales	UC08

Commented [ENR14]: That has been adjusted for Functional Requirement and already add new column for code of usecase diagram

3.3 Design of Use Case Application

The Design of Use Case Application of Designing Web Marketplace of Sacrificial Cattle Sales in East Java can be seen in Figure 2. Use Case Design is obtained from business processes that occur in the field and based on the functional requirements of the system.

Commented [WU15]: It is better to give code to the usecase

Commented [WU16]: If you use generalitation, all usecases do not need to 'include' to login usecase

Figure 2. Use Case Design of Designing Web Marketplace of Sacrificial Cattle Sales.

Commented [WU17]: It is better to implement the concept of generalitation and boundary in usecase diagram

Commented [ENR18]: The use case diagram has been adjusted with boundary system

Before the Use Case Application, there is the Architecture Design from Designing Web Marketplace Sacrificial Cattle Sales in East Java seen in Figure 3. This Architectural Design can help understand the hardware components and entities involved in the Designing Web Marketplace Sacrificial Cattle design system.
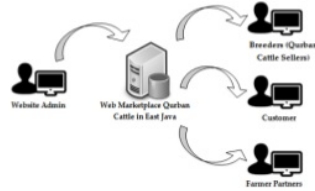

Figure 3. Architecture Design of Designing Web Marketplace Sacrificial Cattle Sales in East Java.

Based on Figure 3 Architecture Design of the Designing Web Marketplace of Sacrificial Cattle Sales is divided into 4 users, there are Website Admins, Sacrificial Cattle Sellers, Customers / Buyers, and Farmer Partners. If related to the Use Case in Figure 2, the Website Admin must regulate User Access Rights, Master Data Management, and get Reports on all Transactions periodically. For sellers, they will be involved in uploading a catalog of Sacrificial Cattle, Sales Transactions with Buyers, Shipping/Delivery Transactions, Sending messages, and notifications for Farmer Partners for Animal Husbandry Services, and receiving Periodic Transaction Reports. Customers can make Sales Transactions, check Shipping/Delivery status, and Payment Transactions. For Farmer Partners, we will get a notification that there will be an Animal Care Services and confirmation of approval from the Farmer Partner, whether it can still receive the daycare services or have been fully charged by other customers.

3.4 Design of Database
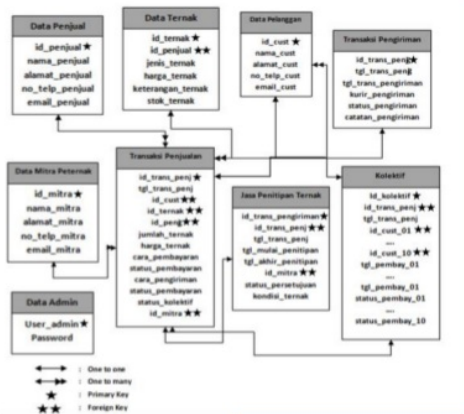
Figure 4. Database Design of Web Marketplace of Sacrificial Cattle Sales.

> **Commented [WU19]:** Do a recheck of the cardinality, which is one to many or many to many, And do check the foreign key from the cardinality

> **Commented [ENR20]:** Database Design has been already adjusted with relationship, primary key, and foreign key

The Database Design for the Designing Web Marketplace of Sacrificial Cattle Sales can be seen in Figure 4 which consists of 9 tables including (1) Admin Table, (2) Seller Table, (3) Customer Table, (4) Farmer Partner Table, (5) Sales Transaction Table, (6) Shipping/Delivery Table, (8) Animal Care Service Table, dan (9) Collective Table.

3.5 Design User Interface using *User-Centered Design* (UCD)

The Design User Interface for Designing Web Marketplace of Sacrificial Cattle Sales in East Java is adapted to the principle of User-Centered Design (UCD). In this study, it involves 4 phases there are (1) Specify the context of use with analyzing specifically who people will use this web marketplace and what they will use it for. It can be done by interview process to breeders, breeder partners, and customers of the web marketplace. (2) Specify Requirement with analyze user requirements, elements, and criteria for designing web marketplace of sacrificial cattle sales which formed from user persona and customer journey map. Besides it, supplemented by interviews and requests for opinions from cattle farmers and customers of sacrificial cattle, especially cows in Ngawi Regency, Mojokerto Regency, and Surabaya City, East Java. (3) Create a design solution with design a storyboard for user and system requirements. (4) Evaluate design with usability testing and collecting suggestions and opinions from the prototype of the web marketplace. This will be explained in the final stages and conclusions.

1. **Design User Interface of Homepage/Main Page.**

Figure 5. Design User Interface of Homepage of Web Marketplace.

All pages are designed in green because these colors belong to the cool color group (cool for vision), contain a natural (natural), fresh, and stable impression, and are identical to grass and animal husbandry [17]. On the Homepage/Main Page, visitors will be given a choice of Sacrificial Cattle Catalog (especially Cows). To be able to make transactions, website visitors must register/register first. If not logged in, users can only search for products, or other promos.

2. Design User Interface of Sacrificial Cattle Catalog.

On the Sacrificial Catalog page, several types of sacrificial cows will be displayed according to the search criteria and categories of cows. The categories of cows can be distinguished by the price of livestock from the lowest to the highest, the weight of livestock, and the type of animal delivery (directly send or deposited in advance by utilizing animal care services). The interface design of the Sacrificial Cattle Catalog page can be seen in Figure 6.

Figure 6. Design User Interface of Sacrificial Cattle Catalog.

3. Design User Interface of Detail of Sacrificial Cattle Sales.

On the sacrificial cattle detail page, some information related to sacrificial cattle prices, cows weights, the number of available stocks, the selection of types of purchases (individual or group), and the type of delivery (send directly or make use of livestock care services in advance). The interface design page for Sacrificial cattle detail and sacrificial cattle sales can be seen in Figure 7.

Figure 7. Design User Interface for Detail Information Page of Sacrificial Cattle.

4. Design User Interface of Sacrificial Cattle Promo

The Sacrificial Cattle Promo page can be used when there is a promo given by the seller. Promo gave in the form of discounts following the wishes of sacrificial cattle sellers. Sales with this promo apply to purchases independently or collectively. The design page for the sacrificial cattle promo can be seen in Figure 8.

Figure 8. Design User Interface of Sacrificial Cattle Promo Page.

5. Design User Interface for Payment of Animal Care Services.

On the Payment page for groups and utilizing Animal Care Services, calculations will be displayed which are obtained from the price of sacrificial cattle, the amount of purchase, the total cost of care, and shipping costs. The interface design of the sacrificial payment page for Animal Care Services can be seen in Figure 9.
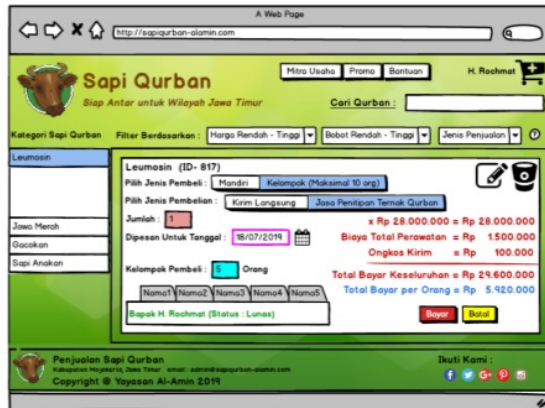
Figure 9. Design User Interface of Animal Care Service Page.

3.6 Testing of Designing Web Marketplace of Sacrificial Cattle Sales

The testing focuses on the availability of features and the level of user satisfaction with the results of the Designing Web Marketplace Sacrificial Cattle Sales Interface. Testing is done through 2 ways, namely *Usability Testing* [18][19] and 5 *second testing* [20] with respondents collected from the combined seller/breeder and buyer/customer sacrificial cows of 25 people.

A. *Usability Testing*

Testing using the usability testing method uses 4 Likert scales placed on the questionnaire with the following interval percentages :

Interval Percentage = (100/4) = 25%, so the resulting interval table is as follows:

Table 3. Interval Percentage

Interval Percentage	Criteria
0 % - 24.99%	Strongly Disagree (STS)
25% - 49.99%	Disagree (TS)
50% - 74.99%	Agree (S)
75 % - 100%	Strongly Agree (SS)

The results of distributing questionnaires to measure the level of user convenience in understanding the design of the interface that has been made have been calculated and recapitulated as in Table 4.

Table 4. Likert Calculation Table

No	Statements	STS	TS	S	SS	Likert Average
1	Posts on the main page are easy to read.	0	0	16	9	Easy to Learn (Learnability) = 88.25%
2	Menu provided is complete according to user needs.	0	0	8	17	
3	Visually, all the functions and uses of features and buttons are understood by the user	0	0	9	16	
4	The process of using a transaction page is easy for users to recognize and understand	0	2	10	13	
5	Substitution of the start page to the next page meets the standard responsive system	0	0	17	8	Appropriate (Efficiency) = 84.5%
6	All pages displayed in the design are following the overall feature requirements	0	0	14	11	
7	Use of Logo and Title Design Applications easily remembered by the user	0	0	13	12	Easy to remember (Memorability) = 88%
8	The use of color is following the design theme of the Sacrificial Cattle application	0	0	11	14	
9	A help page has been provided if needed by the user	0	0	13	12	Fault (Error) = 89%
10	Not found the wrong page/user error when one clicks on the system	0	0	9	16	
11	Users can easily make transactions according to the application system design	0	3	10	12	Pleasure (Satisfaction) = 87%
12	The availability of the Data Search feature from Sacrificial Cattle Catalog can assist users in making choices following the actual availability of livestock at the seller/farm involved in it	0	0	7	18	
13	Cattle on the catalog picture cow is following the real picture of the cattle in the seller / farm-related.	0	0	13	12	
14	Information on Sacrificial cattle detail description has been provided following user needs	0	2	17	6	

| 15 | Overall, the features provided in this marketplace web design can help customers make sales transactions for Sacrificial Cattle. | 0 | 0 | 8 | 17 | |

The Likert Scale Calculation Table is divided into 5 statement components, namely *Learnability* component, *Efficiency* component, *Memorability* component, *Error* component, and *Satisfaction* component, which has an average of respondents' answers to each component in succession according to 88.25%, 84.5%, 88%, 89%, and 87%. The results of testing using this *usability testing* when averaged over all of the 5 components indicate that 87.3% of users can accept the interface design of the Web Marketplace of Sacrificial cattle Sales in East Java.

B. 5-*Second Testing*

Testing using 5-*second testing* is performed to get the interest of the user when the first 5 seconds glance view of Interface Design of Web Marketplace Sacrificial Cattle Sales. This is done to get the first impression from the user of the system offered.

Figure 10. Question Form in 5-second testing.

Table 5. Respondents Answer Results from 5-second testing.

Person	Answer 1	Answer 2	Answer 3
1	Sapi Qurban	Promo	Warna Hijau
2	Sapi Qurban	Katalog	Promo
3	Sapi	Promo	Promo
4	Sapi Qurban	Promo	Detail Produk
5	Sapi Qurban	Promo	Logo
6	Sapi	Promo	Warna Hijau
7	Ternak Sapi	Promo	Promo
8	Sapi	Promo	Promo
9	Sapi	Detail Produk	Detail Produk
10	Sapi Qurban	Katalog	Promo
11	Sapi Qurban	Jasa Penitipan Ternak	Warna Hijau
12	Sapi	Katalog	Detail Produk
13	Sapi Qurban	Katalog	Logo

Person	Answer 1	Answer 2	Answer 3
14	Sapi Qurban	Promo	Logo
15	Sapi	Promo	Detail Produk
16	Sapi	Promo	Detail Produk
17	Sapi Qurban	Detail Produk	Detail Produk
18	Sapi	Promo	Warna Hijau
19	Ternak Sapi	Promo	Promo
20	Sapi Qurban	Jasa Penitipan Ternak	Promo
21	Sapi Qurban	Promo	Warna Hijau
22	Sapi	Katalog	Detail Produk
23	Sapi Qurban	Promo	Detail Produk
24	Sapi Qurban	Detail Produk	Warna Hijau
25	Ternak Sapi	Promo	Logo

The results of testing using 5-*second testing* can give a good impression of customer interest, especially on the design page for Sacrificial cattle sales promos.

4. Conclusion

Based on the evaluation results of the prototype design that was built using the UCD method, it shows that the design is acceptable to the user and the features provided have been adapted to the needs and conditions of selling sacrificial cattle in general. However, the use of the UCD method for the web design marketplace for sacrificial cattle sales has constraints in analyzing what users need during the interview process. This is because users are accustomed to conducting conventional sacrificial cattle sales transactions and there are fears of a decline in the level of trust of their customers because they cannot meet face to face. The design of this application helps the makers of the application along with the sellers of cattle herds to be able to sell sacrificial cows directly to end buyers in the surrounding area and increase the competitiveness of farms. The results of testing using *usability testing* for an average of 5 components of usability shows that 87.3% of users can receive an interface design from the Web Marketplace of Sacrificial Cattle Sales. On the other hand, the results of 5-*second testing* can give a good impression of customer interest, especially on the design page for sacrificial cattle sales promos. In the future, this prototype can be developed as an application that can help users to make transactions easily through the web marketplace of sacrificial cattle sales.

> **Commented [WU23]:** Not specificly mention about user cetered design method

> **Commented [ENR24]:** Conclusions have been added regarding the application of the UCD method

5. References

[1] D. J. P. dan K. H. K. Pertanian, "Kementerian Pertanian : Hewan Kurban Harus Sehat Dan Dagingnya Higienis," *Kementerian Pertanian*, 2018. [Online]. Available: http://ditjenpkh.pertanian.go.id/kementan-hewan-kurban-harus-sehat-dan-dagingnya-higienis. [Accessed: 05-Apr-2019].

[2] A. Negassa, S. Rashid, and B. Gebremedhin, "Livestock Production and Marketing," 2011.

[3] Iwansah, "Efektivitas Promosi Jual Beli Hewan Qurban Melalui Online (Studi pada Situs OLX.co.id," Institut Agama Islam Negeri Raden Intan Lampung, 2016.

[4] AHDB Beef & Lamb, "Livestock Markets - Serving The Industry For 200 Years," 2017.

[5] K. L. Wendt, "Perceptions of and Motivation for Puchasing Exhibition Livestock Through Online Auctions," Oklahoma State University, 2014.

[6] S. R. Khoirunnisa, "Analysis Strategy Business and Design On PT. Lembu Besar Sejahtera (LBS)," UNIVERSITAS BINA NUSANTARA, 2015.

[7]   Sapiqurban.info, "Standart Perawatan Sapi Qurban Mustiko Al-Amin," *Sapiqurban.info*, 2015. [Online]. Available: http://www.sapiqurban.info/perawatan-sapi-qurban.html. [Accessed: 05-Apr-2019].

[8]   K. L. Naben, "Website Promosi dan Penjualan Ternak Sapi (Studi Kasus pada Dinas Peternakan Provinsi Nusa Tenggara Timur)," Universitas Katolik Widya Mandiri, Kupang, 2017.

[9]   N. Sitanggang, "Bisnis Ternak Sapi," *Agribisnis Online*, 2015. [Online]. Available: https://agribisnis.co.id/bisnis-ternak-sapi/. [Accessed: 07-Feb-2019].

[10]   M. F. Hamidurrahman, "Strategi pengembangan usaha sapi kurban cv bintang tani di kecamatan dramaga, kabupaten bogor," Institut Pertanian Bogor, 2016.

[11]   A. Elysia, I. Darmawan, and M. A. Hasibuan, "Perancangan E-Commerce Angon Untuk Pelaku Peternakan Berbasis Marketplace Untuk Meningkatkan Efisiensi Pembelian (Modul Pembelian) Design E-Commerce Angon Based on Marketplace To Increase Purchasing Efficiency for Livestock ' S Actor (Purchase Module)," in *e-Proceeding of Applied Science*, 2016, vol. 3, no. 2, pp. 3143–3148.

[12]   S. S. V. Mallin and H. G. de Carvalho, "Assistive Technology and User-Centered Design: Emotion as Element for Innovation," *Procedia Manuf.*, vol. 3, no. Ahfe, pp. 5570–5578, 2015.

[13]   S. Dhandapani, "Integration of User Centered Design and Software Development Process," in *IEEE 7th Annual Information Technology, Electronics and Mobile Communication Conference (IEMCON)*, 2016.

[14]   R. Candra, N. Santi, and A. Fitriyah, "Perancangan Interaksi Pengguna (User Interaction Design) Menggunakan Metode Prototyping," *J. Tek. Inform.*, vol. 9, no. 2, pp. 108–113, 2016.

[15]   M. P.Niemien, *User-Centered Design Competencies*. Doctoral Dissertations - Aalto University, 2015.

[16]   A. Chammas, M. Quaresma, and C. Mont'Alvão, "A Closer Look on the User Centred Design," *Procedia Manuf.*, vol. 3, no. Ahfe, pp. 5397–5404, 2015.

[17]   G. Pradita, "Warna dan Emosi dalam Desain Interface – Paperpillar – Medium," *19 Oktober*. 2016.

[18]   Usability.gov, "Usability Testing," *May 31, 2016*, 2004. [Online]. Available: www.usability.gov/tools /usabilitytesting.html.

[19]   M. H. Cloyd, "Designing user-centered web applications in web time," *IEEE Softw.*, vol. 18, no. 1, pp. 62–69, 2001.

[20]   I. Saputri, M. Fadhli, and I. Surya, "Penerapan Metode UCD (User Centered Design) Pada E-Commerce Putri Intan Shop Berbasis Web," *J. Teknol. dan Sist. Inf.*, vol. 3, no. 10, pp. 269–278, 2017.

Implementation of the *User-Centered Design* (UCD) Method for Designing Web Marketplace of Sacrificial Cattle Sales in East Java

http://doi.org/10.26594/register.v6i1.idarticle

Implementation of UCD Method for Designing Web Marketplace Sacrificial Cattle Sales in East Java

1	Submitted to Universitas Pendidikan Indonesia Student Paper	**3**%
2	Evan Tanuwijaya, Safri Adam, Mohammad Fatoni Anggris, Agus Zainal Arifin. "Query Expansion menggunakan Word Embedding dan Pseudo Relevance Feedback", Register: Jurnal Ilmiah Teknologi Sistem Informasi, 2019 Publication	**1**%
3	Popon Handayani, Sri Utami, Wisti Dwi Septiani, Ida Darwati et al. "The E-Commerce Implementation to Improve the Agricultural Product by using User Centered Design Method", Journal of Physics: Conference Series, 2019 Publication	**<1**%
4	Ramadiani Ramadiani, Auliana Rahmah. "Sistem pendukung keputusan pemilihan tenaga kesehatan teladan menggunakan metode Multi-Attribute Utility Theory", Register: Jurnal Ilmiah Teknologi Sistem Informasi, 2019	**<1**%

Publication

5 Submitted to Middle East College of Information Technology
   Student Paper
   <1%

6 Submitted to University of Greenwich
   Student Paper
   <1%

7 eprints.soton.ac.uk
   Internet Source
   <1%

8 yeonheesjewelry.com
   Internet Source
   <1%

9 Abdul Rauf, Mahar Faiqurahman, Denar Regata Akbi. "Secure random port list generator pada mekanisme autentikasi dengan menggunakan Port Knocking dan Secure Socket Layer", Register: Jurnal Ilmiah Teknologi Sistem Informasi, 2018
   Publication
   <1%

10 Submitted to South Bank University
    Student Paper
    <1%

11 "Advances in Ergonomics in Design", Springer Science and Business Media LLC, 2018
    Publication
    <1%

12 Riki Wijaya, Johanes Fernandes Andry. "Performance measurement of JP soft application using COBIT 5 framework", Register:
    <1%

Exclude quotes	Off	Exclude matches	Off
Exclude bibliography	On		