# Design E-Catalogue Information System as Promotional Media at PT. XYZ

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**Abstract.** This study aims to design an e-catalogue information system as a promotional media for PT. XYZ uses the waterfall method. The system is designed to facilitate e-catalogue design and product data management, thereby increasing the efficiency and effectiveness of product promotion. System testing was conducted using the black box equivalence partitioning method with PT. XYZ's management and beta testing involved 74 respondents, including experts in information technology, digital marketing specialists, and potential consumers. The test results show that the developed e-catalogue system meets user needs in terms of ease of use, clarity of information, and efficiency in e-catalogue design. With this system, PT. XYZ is expected to become more competitive in the market and boost product sales.

**Keywords:** E-Catalogue, Information System, Promotion.

## 1      Introduction

The rapid development of science and technology necessitates fast and accurate information for businesses. Efficient and sophisticated technology, both hardware and software, is essential for managing information [9]. According to Campaign Monitor, 78% of businesses plan to increase their digital marketing spending [8]. Digital marketing, as described by [20], involves using internet-connected devices and digital media for marketing efforts. This trend is especially prominent in start-ups, with Indonesia having 2,482 start-ups, ranking sixth globally [5].

PT. XYZ, a start-up, faces challenges in innovating product promotion through an e-catalogue information system. According to the Government Goods/Services Procurement Policy Institution Regulation Number 11 of 2018, an e-catalogue is an information system containing various product details from providers. As of November 26, 2023, LKPP data recorded 7.4 million products in the e-catalogue, with e-purchasing transactions reaching IDR 183.2 trillion [14].

Research by [12] indicates that sales are influenced by digital media and outbound marketing, highlighting the need for new digital marketing strategies. PT. XYZ, involved in engine repair and trading, must stay abreast of technological developments to remain competitive. An e-catalogue information system is ideal for promoting their products.

Previous research by [7] did not cover beta testing. Beta testing is crucial for ensuring the e-catalogue system works well by relying on external feedback. PT. XYZ, a B2B company without

an existing information system, can benefit from designing an e-catalogue to enhance product awareness and simplify customer access to product information.

The goal of designing the e-catalogue information system at PT. XYZ is to inform the target market about its products and services, including company profiles, activities, products, testing aspects, and service types, making the e-catalogue a promotional tool. Based on this background, the author is interested in researching the design of an e-catalogue information system as promotional media at PT. XYZ.

## 2      Method

The research method used in this study is mixed methods, combining qualitative and quantitative approaches. The study employs the Waterfall software development methodology, which includes sequential steps: requirements analysis, design, implementation, testing, and maintenance.

Primary data is collected through interviews and direct observations. It includes in-depth interviews and questionnaires [35]. Secondary data is gathered from existing sources like research journals, company profiles, product photos, and operational processes.

Testing involves the black box equivalence partitioning method with 30 test scenarios, evaluating whether results are "successful" or "unsuccessful" [2]. Beta testing uses the Computer Usability Satisfaction Questionnaire [19], with 14 tailored questions.

The research population includes company leaders, IT experts, digital marketing experts, and prospective customers of PT. XYZ. The sampling technique is purposive sampling, encompassing the entire population of 30-500 people, following guidelines from [26].

Data analysis combines descriptive qualitative and quantitative methods to deeply understand the collected data.

1. Data analysis before the study is conducted, where data from previous studies are analyzed to determine the focus of the research.
2. Data analysis during the study was conducted, where data was collected directly through documentation and questionnaires.
3. Data analysis after the research is completed, where the data obtained is evaluated to provide an overall overview of the research object to be searched for on average (mean).
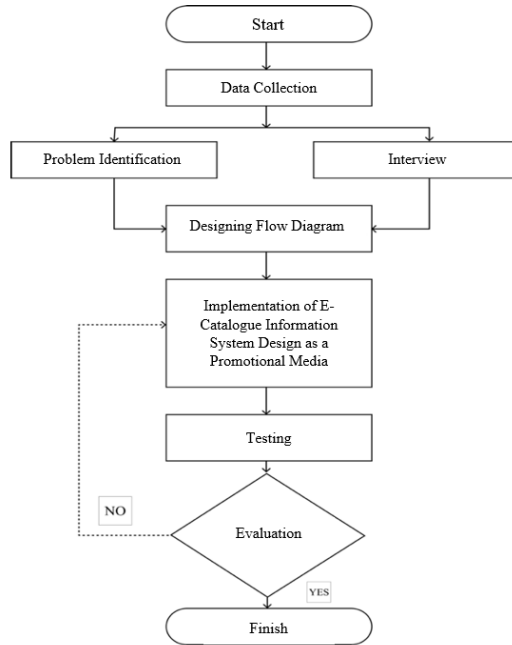
**Fig. 1.** *Research Design Flowchart*

# 3 Results and Discussion

The registration process on the sikap.lkpp.go.id page involves several main steps, namely the provider opening the site and following the entire registration flow, as shown in the image below.
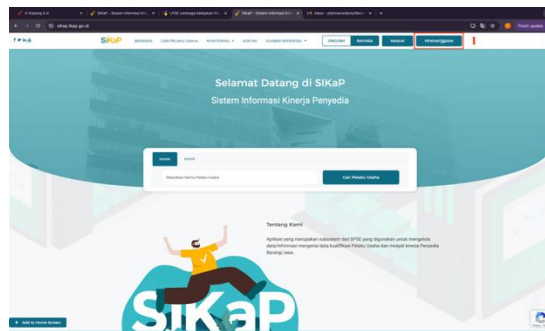


**Fig. 2.** Sikap Registration Page

Next visit *website* e-katalog.lkpp.go.id for *Login* to e-catalogue. As can be seen in the figure below.
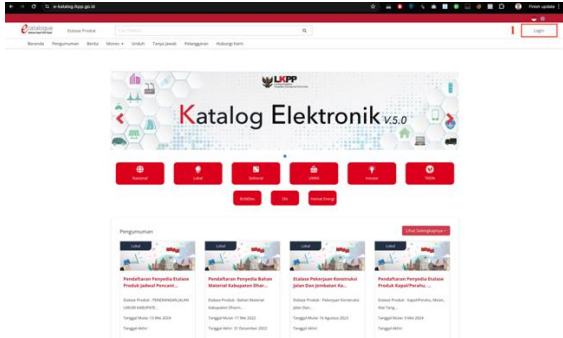
**Fig. 3.** E-Catalogue login page

After successfully doing *Login* Go to the page e-catalogue, then enter the stage of adding products by clicking the "Products" menu and then clicking "Add Product". As can be seen in the figure below.
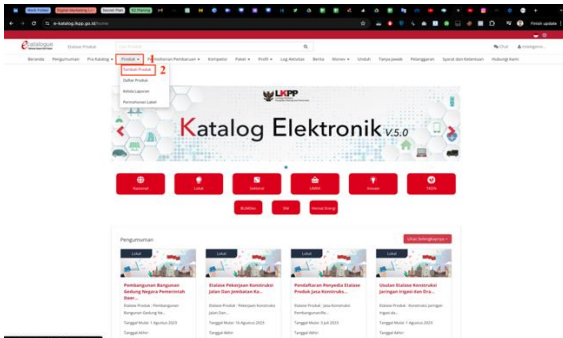


**Fig. 4.** Add Product

To see products that have successfully aired on e-catalogue LKPP. Provider Back to page *Home* then click on "Products" and click on "Product List". As can be seen in the figure below.
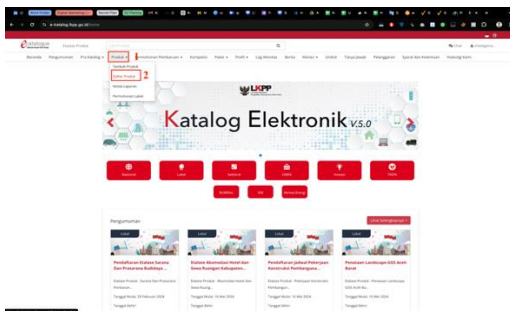


**Fig. 5.** Product List

To do *Logout*, the provider clicks the menu "*Profile*" The name of the provider company then clicks "*Logout*" and then the process *Logout* is finished. As can be seen in the figure below.
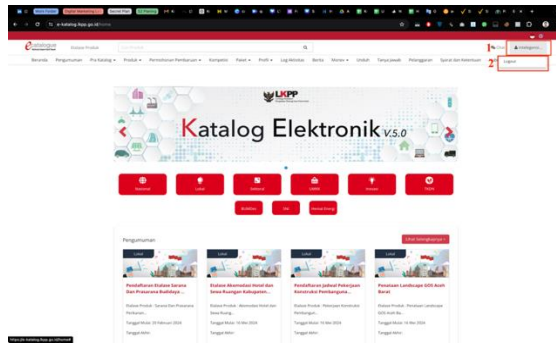


**Fig. 6.** Logout Page

In the testing stage, Black Box testing is conducted using the Equivalence Partitioning method. The system is tested by running it with leadership respondents at PT. XYZ and observing the output to ensure it aligns with the expected results.

## 3.1    Black Box Testing

**Table 1.** Testing the Signup Page

| ID | Test Description | Expected Results | Test Results Succeed | Unsuccessful |
|----|------------------|------------------|:--------:|:------------:|
| A1 | The "Sign Up" button is easy to recognize and access | Visible and easy-to-click buttons | ✔ | |
| A2 | Registration instructions are clear and easy to understand | Instructions are easy to understand | ✔ | |
| A3 | Receiving valid data input | The system receives valid data | ✔ | |
| A4 | Reject invalid data (email, password) | The system rejects invalid data | ✔ | |
| A5 | Send a confirmation email after registration | The user receives a confirmation email | ✔ | |
| A6 | Visual elements are well-displayed | Consistent display across all devices | ✔ | |
| A7 | Error messages are displayed clearly | Error messages are visible | ✔ | |

Source: Data processing 2024

## 3.2     Login Page Testing

**Table 2.** Login Page Testing

| ID | Test Description | Expected Results | Test Results Succeed | Unsuccessful |
|---|---|---|:---:|:---:|
| B1 | Easy-to-find login page | Users can find the login page easily | ✔ | |
| B2 | The "Login" button is easily recognizable and accessible | Visible and easy-to-click buttons | ✔ | |
| B3 | Receive the correct username and password combination | The system accepts the correct combination | ✔ | |
| B4 | Reject incorrect username and password combinations | The system rejects the wrong combination | ✔ | |
| B5 | Provides a "Forgot Password" option | The "Forgot Password" option is available | ✔ | |
| B6 | The login page performs well | Consistent display across all devices | ✔ | |
| B7 | The login error message is displayed | Error messages are visible | ✔ | |

Source: Data processing 2024

## 3.3     Product Registration Page Testing

**Table 3**. Product Registration Page Testing

| Aspects | Test Description | Expected Results | Test Results Succeed | Unsuccessful |
|---|---|---|:---:|:---:|
| C1 | Pages to add products are easy to find | Users can find pages easily | ✔ | |
| C2 | The "Add Product" button is easily recognizable and accessible | Visible and easy-to-click buttons | ✔ | |
| C3 | Receive valid product data input | The system receives valid data | ✔ | |
| C4 | Reject invalid product data | The system rejects invalid data | ✔ | |
| C5 | Visual elements are well-displayed | Consistent display across all devices | ✔ | |
| C6 | Error messages are displayed clearly | Error messages are visible | ✔ | |

Source: Data processing 2024

**3.4     Testing a Live Product Page**

**Table 4.** Testing a Live Product Page

| Aspects | Test Description | Expected Results | Test Results Succeed | Unsuccessful |
|---|---|---|---|---|
| D1 | Product pages that are easy to find | Users can find pages easily | ✔ | |
| D2 | Navigation buttons are easy to recognize and access | Visible and easy-to-click buttons | ✔ | |
| D3 | Products displayed correctly | The system displays the product correctly | ✔ | |
| D4 | Product display functionality works accordingly | Functionality works well | ✔ | |
| D5 | Visual elements are well-displayed | Consistent display across all devices | ✔ | |
| D6 | Error messages are displayed clearly | Error messages are visible | ✔ | |

Source: Data processing 2024

**3.5     Logout Page Testing**

**Table 5.** Logout Page Testing

| Aspects | Test Description | Expected Results | Test Results Succeed | Unsuccessful |
|---|---|---|---|---|
| E1 | The "Log Out" button is easily recognizable and accessible | Visible and easy-to-click buttons | ✔ | |
| E2 | The system ejects the user correctly | User successfully logs out | ✔ | |
| E3 | Visual elements are well-displayed | Consistent display across all devices | ✔ | |
| E4 | Error messages are displayed clearly | Error messages are visible | ✔ | |

Source: Data processing 2024

**3.6     Beta Testing**

In this study, the implementation of the e-catalogue of PT. XYZ was measured by distributing questionnaires to three categories of respondents, namely information technology experts, Digital Marketing, and potential consumers. There are 14 questions according to the Computer Usability Satisfaction Questionnaire with a Likert scale. Based on the results of the statistical calculations that have been carried out, a recapitulation of respondents' responses regarding the implementation of e-catalogues is obtained in the table below.

**Table 6.** Beta Page Testing

| No. | Statement | ASBU | | SBU | | BU | | C | | BA | | SBA | | ASBA | | Mean | Skor | TCR % |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | F | % | F | % | F | % | F | % | F | % | F | % | F | % | | | |
| 1 | Overall, I am satisfied with the ease of use of this e-catalog system. | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 17 | 23 | 33 | 45 | 20 | 27 | 5,85 | 433 | 84 Excellent |
| 2 | This e-catalog system is easy to use. | 0 | 0 | 3 | 4 | 2 | 3 | 3 | 4 | 9 | 12 | 25 | 34 | 32 | 43 | 5,99 | 443 | 86 Very Very Good |
| 3 | I can complete my work effectively using this e-catalog system. | 1 | 1 | 1 | 1 | 2 | 3 | 3 | 4 | 24 | 32 | 23 | 31 | 20 | 27 | 5,66 | 419 | 81 Excellent |
| 4 | I feel comfor | 0 | 0 | 3 | 4 | 1 | 1 | 1 | 1 | 17 | 23 | 31 | 42 | 21 | 28 | | 431 | 83 |

| No | Statement | | | | | | | | | | | | | | | Value | Total | Category |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | table using this e-catalog system. | | | | | | | | | | | | | | | 5,82 | | Excellent |
| 5 | This e-catalog system is easy to learn to use. | 0 | 0 | 1 | 1 | 2 | 3 | 2 | 3 | 10 | 14 | 31 | 42 | 28 | 38 | 6,05 | 448 | 86 Very Very Good |
| 6 | The information provided with this e-catalog system (Product specifications, Product prices, Product images, product providers, product stock, product shipping costs and product review | 0 | 0 | 0 | 0 | 4 | 5 | 3 | 4 | 16 | 22 | 26 | 35 | 25 | 34 | 5,88 | 435 | 84 Excellent |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | s.) is clear. | | | | | | | | | | | | | | | | |
| 7 | The information I need is easy to find in this e-catalog system. | 0 | 0 | 1 | 1 | 5 | 7 | 3 | 4 | 16 | 22 | 29 | 39 | 20 | 27 | 5,72 | 423 | 82 Excellent |
| 8 | The information provided for this e-catalog is easy to understand. | 0 | 0 | 2 | 3 | 3 | 4 | 5 | 7 | 13 | 18 | 26 | 35 | 25 | 34 | 5,80 | 429 | 83 Excellent |
| 9 | This information effectively helps me complete tasks and scenarios in this e- | 0 | 0 | 1 | 1 | 3 | 4 | 0 | 0 | 18 | 24 | 32 | 43 | 20 | 27 | 5,85 | 433 | 84 Excellent |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | catalog system. | | | | | | | | | | | | | | | | | |
| | . | | | | | | | | | | | | | | | | | |
| 10 | The structure of the information on the screen of this e-catalog system is clear. | 0 | 0 | 1 | 1 | 2 | 3 | 0 | 0 | 16 | 22 | 27 | 36 | 28 | 38 | 6,03 | 446 | 86 Very Very Good |
| 11 | The interface of this e-catalog system is pleasant. | 0 | 0 | 0 | 0 | 2 | 3 | 2 | 3 | 19 | 26 | 29 | 39 | 22 | 30 | 5,91 | 437 | 84 Excellent |
| 12 | I like to use the interface of this e-catalog system. | 1 | 1 | 1 | 1 | 2 | 3 | 4 | 5 | 13 | 18 | 18 | 24 | 35 | 47 | 5,99 | 443 | 86 Very Very Good |
| 13 | This e-catalog system | 0 | 0 | 2 | 3 | 1 | 1 | 1 | 1 | 12 | 16 | 39 | 53 | 19 | 26 | 5,92 | 438 | 85 Excellent |

| | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | has all the functions and capabilities I expected. | | | | | | | | | | | | | | | | |
| 14 | Overall, I am satisfied with this e-catalog system. | 0 | 0 | 1 | 1 | 3 | 4 | 1 | 1 | 11 | 15 | 31 | 42 | 27 | 36 | 6,01 | 445 | 86 Very Very Good |
| Accumulated average score | | | | | | | | | | | | | | | | 5,89 | | 84 Excellent |

Source: Data processing 2024

In the results of the beta test above, it can be concluded that of the 74 respondents who felt very good with a score of 84% of the total data tested with the highest score of 86% felt very good about the performance of the LKPP e-catalogue and the lowest score was 81% with several things that still need to be developed in the design of this e-catalogue information system.

# 4        Conclusion

The procedure that runs systematically outlines the activities that occur in the process of registering and using the e-catalogue easily. The system includes a variety of tested pages, such as registration pages, *login* pages, product add pages, live product pages, and *logout* pages. This procedure aims to ensure that every stage in the use of e-catalogues can be carried out efficiently and user-friendly.

The evaluation of this information system was carried out using the black box equivalence partitioning test method and beta testing involving 74 respondents. Based on the results of this beta test, the e-catalogue information system at PT. XYZ generally received a positive rating from most respondents with an average score of 84%. The majority of respondents were satisfied with the ease of use, completeness of content, and functions provided by the system. However,

some aspects need to be improved to achieve higher satisfaction among all users. The authors declare that they have no competing interests.

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