# DESIGNING INTERFACE OF MARKETPLACE BUILD ID MERCHANT ARCHITECT USING TASK-CENTERED SYSTEM DESIGN

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**Abstract:** The advancement of information technology is progressively exerting significant impact across diverse aspects of life, including business. PT Semen Baturaja Tbk is developing a marketplace platform called Build Id to meet community's needs for high-quality construction materials and services, also aims to enhance company's product sales and brand recognition. A system with quality provides ease of use in order to achieve customer satisfaction. Build Id merchant for architects website requires user-friendly design recommendations to increase the user experience when it gets distributed to the market. To achieve this goal, Task-Centered System Design (TCSD) method is being used to focused the design process. TCSD is a method in Human Computer Interaction (HCI) used to identify task and user requirements. The method consists of 4 stages, namely, identification, user-centered requirements analysis, design through scenarios, and walkthrough evaluation. In this study, identification was carried out by conducting system observations and interviews with Build Id team at Digital Marketing Unit of PT Semen Baturaja Tbk and architect as the prospective system users. The interface design results were evaluated using System Usability Scale (SUS) and received final score of 69.615, indicating that the interface design made using TCSD method is feasible for users to use.

**Keywords:** Interface; System Usability Scale; Task-Centered System Design

**Abstrak:** Perkembangan teknologi informasi kian berpengaruh besar dalam berbagai bidang kehidupan, termasuk di dunia bisnis. PT Semen Baturaja Tbk mengembangkan suatu sistem dalam bentuk marketplace dengan nama Build Id, dengan tujuan untuk memenuhi kebutuhan bahan bangunan dan jasa konstruksi yang berkualitas bagi masyarakat, serta memperluas penjualan produk dan *branding* merk dari PT Semen Baturaja Tbk ini sendiri. Sistem yang berkualitas memberikan kemudahan dan kenyamanan dalam penggunaannya demi mewujudkan kepuasan pelanggan. Build Id merchant untuk arsitek memerlukan rekomendasi desain atau prototype *user interface* yang *user friendly* demi meningkatkan pengalaman pengguna ketika didistribusikan ke pasaran nantinya. Metode *Task-Centered System Design* (TCSD) digunakan untuk membantu proses perancangan lebih terarah. TCSD adalah metode dalam *Human Computer Interaction* (HCI) yang digunakan untuk mengidentifikasi kebutuhan *task* dan pengguna. Metode TCSD terdiri dari 4 tahap yaitu, *identification, user-centered requirements analysis, design through scenario, dan walkthrough evaluation*. Identifikasi dalam penelitian ini dilakukan dengan observasi dan wawancara bersama tim Build Id dan calon pengguna sistem yaitu arsitek. Hasil dari rancangan *interface* kemudian dievaluasi menggunakan *System Usability Scale* (SUS) dengan hasil skor akhir 69,615, menunjukkan rancangan *interface* yang dibuat dengan metode TCSD ini layak untuk digunakan pengguna.

**Kata kunci:** Interface; System Usability Scale; Task-Centered System Design

## INTRODUCTION

The advancement of information technology is progressively exerting a significant impact across diverse aspects of life, including business [1]. The user base of internet is consistently expanding, broadening the scope of business operations, encompassing products and services, without being hindered by time and geographical constraints. As this progress unfolds, numerous companies and organizations are beginning to harness this technological evolution to facilitate their business undertakings [2].

Marketplace as one of the technology-based development in the business industry has become increasingly popular choice among people due to the ease of transactions it offers. By providing a platform that facilitates all operations, from site management to payment methods, the marketplace provider company has made it possible for sellers or service providers to conduct their business without the need to rent a physical space to open a selling stall [3]. This innovation has revolutionized the way people do business, allowing them to expand their reach beyond their immediate geographic location. In addition, marketplaces have also created a more competitive environment, giving consumers more options and better prices. With the rise of e-commerce, marketplaces have become an essential component of the digital economy, enabling businesses of all sizes to enter new markets and reach a wider audience [4].

PT Semen Baturaja Tbk is developing a marketplace platform called Build Id to meet the community's needs for high-quality construction materials and services. Additionally, this initiative aims to enhance the company's product sales and brand recognition.This marketplace will consists of 5 menus, which are construction material shops, explore architects, explore builders, selling/renting property, and mortgages/banking loans. These menus can be accessed from 3 sides, from the customer side, the merchant side (materials and service providers), and the owner side (company/admin).

A system with quality provides ease of use and comfort in order to achieve customer satisfaction [5]. Interface design determines whether the user experience or user interaction with the system will be easy or difficult [6]. After conducting discussions with the Build Id team at Digital Marketing Unit of PT Semen Baturaja Tbk, it was found that the Build Id merchant for architects website requires user-friendly design recommendations or user interface prototypes to increase the user experience when it gets distributed to the market. To achieve this goal, the Task-Centered System Design (TCSD) method is being used to help make the design process more focused.

Task-Centered System Design (TCSD) is a method in Human Computer Interaction (HCI) that is used to identify task and user requirements [7]. The TCSD method consists of 4 stages, namely, identification, user-centered requirements analysis, design through scenario, and walkthrough evaluation. [8]. Then the System Usability Scale (SUS) is used to evaluate the usability of the design results that have been made as a measure in identifying how effective the user is when interacting with the system [9].

The Task-Centered System Design (TCSD) method has been previously used to design a digital Al-

Quran user interface as Tahfidz Quran media, where this method increased the usability of the application [10]. Other studies state that the Task-Centered System Design (TCSD) method is successful in identifying user needs and task needs [11]. The TCSD method was also used in a study where a design solutions was produced along with usability evaluation results of the designed interface increased to feasible to use on the SIDEMANG Website Admin Panel [12].

## METHOD

In this research, the authors used the Task-Centered System Design (TCSD) method to enhance research precision. The results of user interface design will then be evaluated using the System Usability Scale (SUS) to see if the created design aligns with user needs. The steps applied encompass the following stages.

### Identification

In the initial phase, system observations and interviews were conducted with Build Id team at Digital Marketing Unit of PT Semen Baturaja Tbk and architect as the prospective system users. These interactions were aimed at gathering essential data and establishing a preliminary understanding of the system, including its focal points and user tasks

### User-Centered Requirements Analysis

This phase aims to determine the entire system requirements that will be designed based on the result of specific stages [13]. Identification of user persona and the needs of system users is carried out by conducting interviews with prospective users, then deciding which tasks will be included or excluded in the design.

### Design through Scenario

In this phase, design is developed based on user needs and tasks that have been previously identified through a prototype.

### Walkthrough Evaluation

This stage conducts final evaluation of the design that has been made. Evaluation is carried out using the System Usability Scale (SUS), which includes 10 simple questions that provide a global view of subjective usability assessments [14]. SUS uses five Likert rating scales with a weight of 0 to 4 from the question given [15].

Table 1. SUS Questions

| No | Question Component |
|----|--------------------|
| 1 | I think that I would like to use this system frequently |
| 2 | I found the system unnecessarily complex |
| 3 | I thought the system was easy to use |
| 4 | I think that I would need the support of a technical person to be able to use this system |
| 5 | I found the various functions in this system were well integrated |
| 6 | I thought there was too much inconsistency in this system |
| 7 | I would imagine that most people would learn to use this system very quickly |
| 8 | I found the system very cumbersome to use |
| 9 | I felt very confident using the system |
| 10 | I needed to learn a lot of things before I could get going with this system |

For questions 1, 3, 5, 7, and 9, the scale position value will be reduced by 1, while for questions 2, 4, 6, 8, and 10, the scale position value will be subtracted from 5. The sum of the score values is multiplied by 2.5 to obtain the SUS score [16].

Table 2. SUS Score Interpretations

| Score | Adjective |
|---|---|
| 0-1,9 | *Worst Imaginable* |
| 2-14 | *Poor* |
| 15-59 | *Ok* |
| 60-89 | *Good* |
| 90-95 | *Excellent* |
| 96-100 | *Best Imaginable* |

The testing was conducted by distributing questionnaires to respondents by testing the designed interface according to the task flow, and then assigning scores by answering the SUS questions on the form.

## RESULT AND DISCUSSION

### Identification

Based on interviews conducted with Build Id team at the Digital Marketing Unit of PT Semen Baturaja Tbk, the Build Id marketplace aims to meet the needs of people for construction materials and services. From a business and competitor standpoint, there are only limited number of marketplaces offering dedicated platforms for selling construction materials and services, making the Build Id marketplace stands as a fresh innovation in the construction industry.

The features provided for Build Id merchant allow architects to explore projects, access project invitations, monitor project activities via the dashboard, interact with clients, and request payments for completed projects.

### User-Centered Requirement Analysis

Target users are aimed at architects from diverse backgrounds, spanning age, gender, and familiarity with the website. This includes architects specializing in facade design, interior design, and mall design. Currently, the marketplace's target audience consists of architects residing in Palembang City, South Sumatra. However, this does not preclude the potential of expanding beyond Palembang City in the future.

Insights garnered from interview with architect, who is the prospective user of the website, yielded several expectations. These include website features that align with their intended functions, avoiding confusion, displaying information succinctly and informatively, and conveying ease of comprehension primarily through visual.

Based on this user persona, it is proposed that the website design be organized with orderly placement, accompanied by images or icons that correspond to their functions and facilitate feature identification. The color scheme should be harmonious and captivating, while maintaining a minimalist approach, all the while upholding the distinct image of marketplace Build Id itself.

User requirements are centered around features related to projects and customer interactions, such as explore project, project invitations, and communication with clients. Furthermore, it has been identified that a help center feature is needed aims to guide users in utilizing the website effectively. This feature will be providing users with comprehensive information on how to navigate the website and

frequently asked questions (FAQs) so that users will have a more pleasant and intuitive experience when using the marketplace.

**Design Through Scenario**

The design results based on the identified task flow are Image 1.
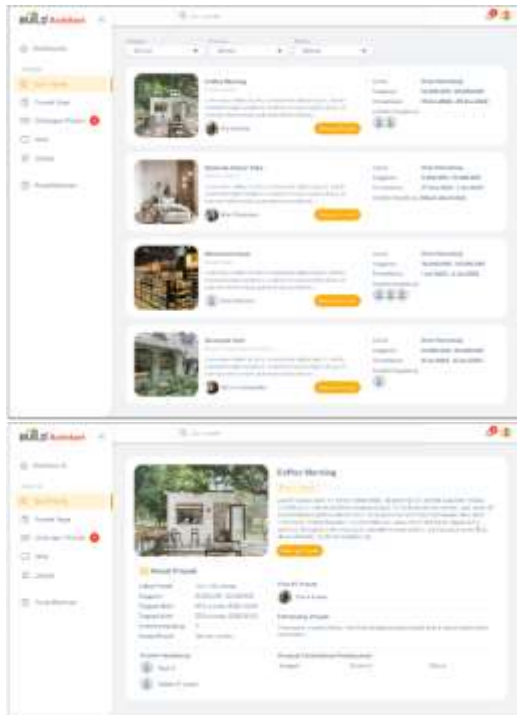


Image 1. Prototype Explore Project Page

Explore Project is a page that displays list of projects registered on the marketplace and allows users to search for projects in more detail. Users can search through the search field on the top of navigation bar and filter the projects using filtering features.
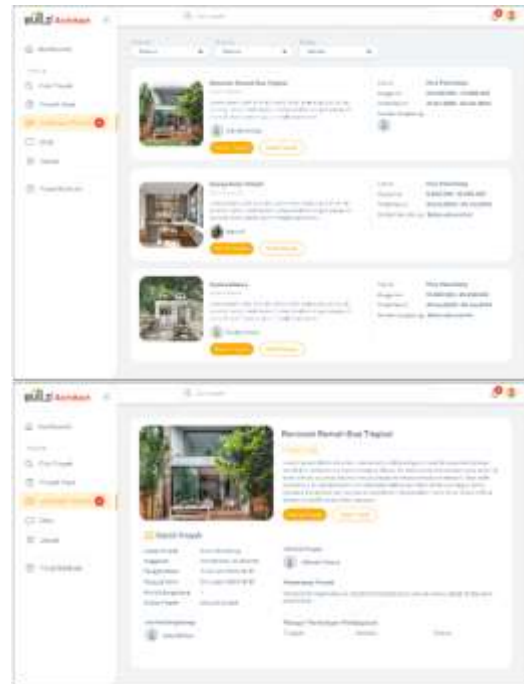


Image 2. Prototype Project Invitation Page

Project Invitation is a page that displays list of projects invited by clients to the user, along with project information. On this page user can give actions to the project, whether to accept or reject the project invitation.
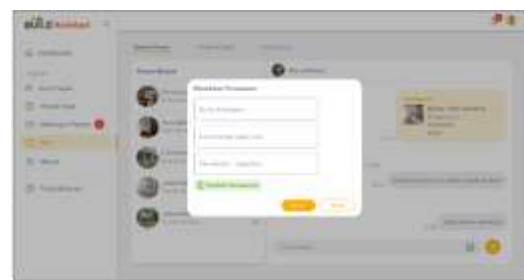


Image 3. Prototype Chat Page

The Chat page is a page that displays a list of conversations with customers. Users can communicate, send photos, and send negotiations offer to clients.
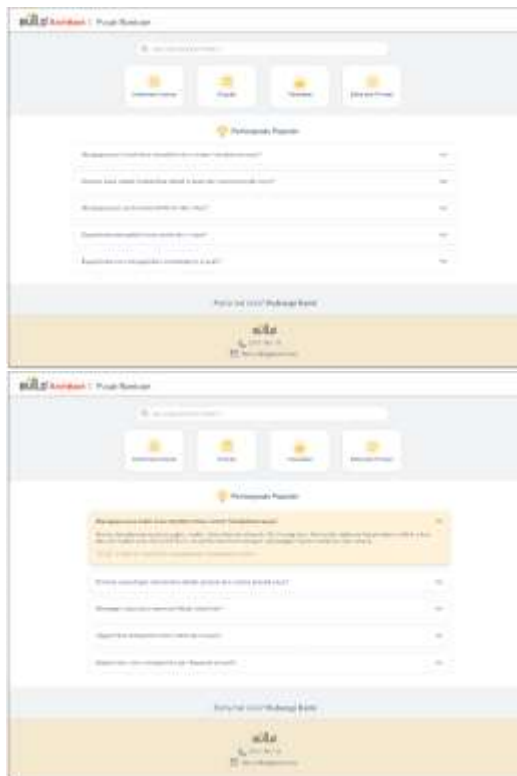
Image 4. Prototype Help Center Page

The Help Center page is a page that displays information regarding policies and guidelines for user in using the marketplace Build Id merchant for architects.

**Walkthrough Evaluation**

The evaluation of the designed user interface is conducted using the System Usability Scale (SUS). A total of 13 respondents were obtained, with age ranging from 19 to 59 years. There were 11 respondents from the architectural domain and 2 respondents from PT Semen Baturaja Tbk.

Table 3. SUS Results

| Respondent | Score |
|---|---|
| R1 | 55 |
| R2 | 80 |
| R3 | 67.5 |
| R4 | 35 |
| R5 | 67.5 |
| R6 | 45 |
| R7 | 75 |
| R8 | 85 |
| R9 | 90 |
| R10 | 77.5 |
| R11 | 75 |
| R12 | 75 |
| R13 | 77.5 |
| **Average** | **69,615** |

The results of the System Usability Scale (SUS) for the created interface design yield an average score of 69.615, indicating that the design falls within the "Good" category and can be considered feasible for use.

**CONCLUSION**

The Task-Centered System Design method is proven to be capable of assisting in mapping user needs for the user interface design of Build Id merchant for architects by focusing on tasks. The usability evaluation result at the score of 69.615 indicates that the created interface design is suitable for user use. By centering on tasks, the interface design process becomes more directed towards the features to be implemented, ensuring that the interface aligns with user and PT Semen Baturaja Tbk team needs.

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