Perspective-Based Inspection to Improve User Experience Aspects in SCRUM Website’s Development

Retno Indah Rokhmawati
Information System Department
Faculty of Computer Science
Universitas Brawijaya
Malang, Indonesia
retnoindahr@ub.ac.id

Adam Hendra Brata
Informatics Engineering Department
Faculty of Computer Science
Universitas Brawijaya
Malang, Indonesia
adam@ub.ac.id

Kristina Lely Liana
Information System Department
Faculty of Computer Science
Universitas Brawijaya
Malang, Indonesia
kristinalely@student.ub.ac.id

ABSTRACT
A company needs a website representing the products or services offered to consumers with an attractive appearance. Along with the development of product or service variations, companies need to make updates to attract target consumers. The company aims to simplify the customer acquisition process through an attractive user interface and user experience. This aim is the goal of this study by applying aspects of the user experience and user interface. At the time of this research, the company was in the website redesign phase using the SCRUM method. This research tries to stay synergistic with the processes running in the company by applying the UX (user experience) method, which is in line with the SCRUM flow. The UX method in question is Perspective-based Inspection. The design strategy taken is to implement color changes to increase brand awareness from the customer’s point of view. Furthermore, this study categorizes the insights from customers into the aspects of UX Honeycomb. The next step is applying Small Up Front Analysis (SUFA) to explore system requirements, then create a conceptual design by dividing three perspectives, namely ecology perspective, interaction perspective, and emotional perspective. Next, this study establishes a user story and applying the Department of Health and Human Services (HHS) guidelines into the high fidelity prototype. After all the processes are complete, the company publishes the redesign results online. This study increased the value of the user experience on usable, useful, and findable values.

CCS CONCEPTS
• Human-centered computing
  • Interaction design
  • Interaction design process and methods

KEYWORDS
perspective-based inspection, user experience, UX honeycomb, SCRUM

ACM Reference format:

1 Introduction
The case study in this research is a company in Indonesia which is engaged in artificial intelligence-based services. This company is a Business to Business (B2B) company in Indonesia which divides its customers into two parts, namely government (government) and enterprise (company). Therefore, the customer representatives involved in this study do not represent individuals but instead represent the viewpoints of companies or government agencies. Preliminary research is carried out by interviewing the Product Manager. Based on the Product Manager’s evaluation, their website is considered less representative of the service because there is still some additional information that has not been appropriately accommodated. It is indicated by an inappropriate categorization of details with the current state of the company. Companies need to redesign their websites to be more informative. Through this redesign, the company hopes to display information that is easier for customers to understand. The website should convey clearly what the company has to offer. The company also intends to increase its brand awareness through a website with a new corporate color brand.
At the time of this research, the company applied the SCRUM process. SCRUM is part of the Agile software development model. Agile development is a method of software development using iterative and incremental models[6]. The company chooses the agile approach because it is considered to respond to changing needs without excessive rework quickly[4]. The weakness of the agile method from a user experience perspective is that agile development does not have a phase of defining usability needs or user experience [2] [8]. Simultaneously, the need to know a good User Experience (UX) has become an essential requirement in system design[19]. This research tries to stay synergistic with the processes running in the company by applying the UX (user experience) method, which is in line with the SCRUM flow.

Based on these problems, this study aims to redesign the user experience in developing the company’s website using Perspective-Based Inspection[1]. The research conditions do not allow large numbers of users because the company has a fast development target. Therefore, this study involved experts [16] by integrating aspects of the user experience based on three of the seven principles of the UX Honeycomb [11][13], namely usable, useful, and findable by company values. Usable value is that the product or service must be simple and easy to use. Useful value means that the user feels that the website meets the user's needs in finding information. The value findable means that users can easily find the information they need.

User Experience or UX focuses on gaining a deep understanding of the user's point of view, what users need, what they value, and also the user's limitations[12]. UX does not only focus on designing the functionality of a system but also considers the business goals and objectives of its managers[3]. The purpose of developing UX is to improve the quality of the users who interact, their perceptions, and every product-related service[9].

The main requirement in UX is to meet user needs precisely and minimize user effort. To achieve a high-value user experience, the manufacturing process must include disciplines, marketing, graphic design, and interface design. UX has a value that is applied in solution design, one of which is the UX Honeycomb. UX Honeycomb is an aspect of value used to describe the various sides of the user experience design. Many aspects help explain what the user wants to feel. According to Peter Morville, UX Honeycomb has six elements, including (1) usable: the system must be simple and easy to use; (2) useful: the system must be helpful and meet the user’s needs; (3) desirable: design should be minimal and to the point; (4) findable: the desired information must be easy to find; (5) accessible: easy to use design for general customers and customers with disabilities; and (6) credible: products and services must be trustworthy [18]. However, in this study, the product manager decided to focus on usable, useful, and findable benefits.

Perspective-based inspection is an evaluation method involving experts where a group from various perspectives will evaluate a product[5]. This method asks evaluators to adopt a particular angle when they examine a product for a problem. Each evaluator will use the product and then evaluate the product used based on what they have in mind. This type of UX evaluation is suitable when stakeholders need quick reviews, do not have easy access to users, and are short on travel budgets.

2 Methodology

The company applies a SCRUM framework in its Agile development process[17]. The research flow can be seen in Figure 1.

![Figure 1: Research Flow](image-url)

In the sprint, there will be a definition of the product backlog that will be worked on in one loop. The SCRUM stage has several sprints, and each sprint is divided into four stages. (1) Sprint Planning: a collaboration occurs to predict which Product Backlog items will be worked on during a Sprint led by a Product Owner; (2) The Sprint Development Development Team will conduct a self-organize to decide on taking the Sprint Backlog for each one
to work on; (3) Sprint Review: at this stage, the Product Owner presents the increment, namely the result of the Development Team's work during one Sprint to stakeholders, to get feedback; (4) Sprint Retrospectives: at this stage of the Sprint Retrospectives, The Development Team and Product Owner will collaborate to determine improvements what they will implement in the next Sprint[10].

3 Result and Discussion

The initial step of the research is to conduct a Small Up Front Analysis (SUFA) by interviewing the Chief Marketing Officer as the person in charge of the marketing and branding of the company to explore the needs of the website [8]. SUFA produces conclusions from the weaknesses of the old website, the organizational context in making the website, the user experience parameters to be achieved, and the statement of the concept of website design (Table 1). The next step is to define an Ecology Perspective to describe the communication between the design vision by providing a hierarchy task analysis (HTA), an interaction perspective, namely how users will interact with the system, depicted with a storyboard. The emotional aspect will communicate how the design vision will have an emotional impact on users[15].

Table 1: Result of SUFA

<table>
<thead>
<tr>
<th>No</th>
<th>Organizational Context</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Create an informative website</td>
</tr>
<tr>
<td>2</td>
<td>Convey clear expectation about what is offered by the company</td>
</tr>
<tr>
<td>3</td>
<td>Ease of users in finding the information they are looking for</td>
</tr>
<tr>
<td>4</td>
<td>Want a new design with a new company color brand</td>
</tr>
<tr>
<td>5</td>
<td>Stakeholders need to add a page to provide news about the company.</td>
</tr>
<tr>
<td>6</td>
<td>New structural design.</td>
</tr>
<tr>
<td>7</td>
<td>Users quickly contact companies.</td>
</tr>
</tbody>
</table>

After obtaining a conceptual design, the next research stage is to compile a user story from the user experience (Table 2). The value applied is that interactions are made faster and better reflect what the user wants. However, researchers need to determine the priority of the process. It must be applied based on the need, which is manifested in the form of a wireframe.

Table 2: User Story

<table>
<thead>
<tr>
<th>No</th>
<th>Organizational Context</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Users come from companies or governments which want to see news about events that the company is participating in or organized, as well as seeing articles about companies and also papers published by the company. Users can open the website at nodeflux.io then select the newsroom menu in the header, including three menu bars of choice, namely article, media, and paper.</td>
</tr>
</tbody>
</table>

Wireframe aims to provide a concept with the arrangement, structure, layout, navigation, and organize content and prioritize the content (Figure 2). The validated wireframe is then turned into a mockup with some colors and illustrations. The process of making a mockup as a high fidelity prototype by providing improvements from the previous one. It is namely wireframes or what can be called low fidelity.

Figure 2: Wireframe for Newsroom Page

The mockup is then processed at the Sprint Planning stage in the form of defining the product backlog that will be done in one cycle and determining a time limit of website development (Figure 3). The development team will evaluate the sprint backlog. Because this study only focuses on designing the user experience, the researcher does not explain the details of the development team and only attach the final work of the developer team. After the development team does the job, the results of each sprint will be tested using Rapid Iterative Testing and Evaluation (RITE) by two participants from the creative team[7]. Participants will be asked to perform a task, and the expert will observe during the test. The experts will evaluate the results of observations. The evaluation method uses Perspective-Based Inspection by experts by utilizing a professional
knowledge of the user experience in assessing the UX system using the Honeycomb UX principle[14], namely usable, useful, and findable. Next, the researcher uses evaluation with three experts, namely the Chief Marketing Officer, Marketing Staff, and Chief Product Officer. This stage will produce evaluation results from the development side and the design side. The design will be improved based on the evaluation results. It will be submitted again to the development team to be analyzed at the next sprint work. After testing, the results of the evaluation will be carried over to the next sprint and included in the sprint retrospective stage. This phase is to determine what work will be done in the next sprint. The design improvement was taken from the results of the evaluation that had been carried out before. The design solutions/mockups are prepared based on the problems and changes that have been analyzed.

In the evaluation phase, participants are tested after the results of each sprint have been completed. Experts and researchers evaluate the results of the test work by participants and make decisions in the evaluation. Furthermore, the Sprint Retrospective phase is carried out, namely making decisions to choose what to do in the next sprint. This research focuses on the design side for the next sprint. In Figure 3, there is a blog page previously named newsroom. This page changes the available news categories. Then there was a change in the number of news posts from 4 layouts to 6 layouts, which aim to increase the ease of users in finding news about companies. It is implementing findable value from UX Honeycomb, considering the information provided is quite a lot and will quickly shift other news Figure 4.

**Figure 3: Mockup for Newsroom Page**

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**Figure 4: Redesign of Newsroom Page**

### 4 Conclusion

In designing with Small Up Front Analysis (SUFA) user experience, it is useful to explore system requirements by identifying relevant stakeholders and identifying website users. The SUFA process produces an analysis of the weaknesses of the old website, the organizational context, defines user experience parameters, and creates a design concept statement. The results obtained from this study are as follows: the SUFA stage produces five main points of weaknesses of the old website and seven main points of organizational context in website design. Based on the result, the company needs to provide three user experience parameters: usable, useful, and findable. The wireframe stage generates a design framework of 6 main pages. It creates the mockup as a hi-fi prototype. Based on the testing result, the company needs to change the name page, content changes, and other item changes. The pages that have changed are the home page, the newsroom page (then transformed into a blog), career page, and contact page. At this stage, there are also additional pages, namely the FAQ and Documentation pages. The final result of this research
is a solution design and a qualitative evaluation result of an increase in the value of the user experience. Based on the results of this study, Perspective-based Inspection can run synergistically with the software development phase that applies the SCRUM method.

ACKNOWLEDGMENTS

The author would like to thank PT. Nodeflux Indonesia and the Faculty of Computer Science Universitas Brawijaya who have fully supported the implementation of this research.

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