

Enterprise Resource Planning (ERP) Business Process Reengineering with Accelerated SAP (ASAP) and Kanban Methods (Case Study: Sahana Bali Craft)

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Abstrak

Sahana Bali Craft, sebuah perusahaan kerajinan tangan yang memproduksi Tas Anyaman khas Desa Tengenan, Kabupaten Karangasem, Bali. Pada hasil wawancara dan observasi, terungkap bahwa perusahaan ini menghadapi beberapa kendala yakni, dalam pencatatan produksi dan perhitungan biaya masih dilakukan secara manual, penerapan konsep Make to Order belum terintegrasi dengan baik, serta perusahaan belum memiliki sistem ERP dan dilakukannya rekayasa ulang. Penelitian ini merekomendasikan penerapan rekayasa ulang sebagai upaya dalam meningkatkan efisiensi proses bisnis dengan metode ASAP dan Kanban. Metode ASAP digunakan dalam merancang sistem ERP guna mengoptimalkan biaya, waktu, dan sumber daya yang tersedia, sedangkan metode Kanban diterapkan dalam manajemen proyek pada tahapan business blueprint dan realization. Rekayasa proses bisnis telah diuji dengan metode UAT terhadap 20 responden dari pihak perusahaan dan menunjukkan 1320<1718<1760 atau proses bisnis usulan sistem dinilai positif.

Kata kunci: Accelerated SAP (ASAP), Enterprise Resource Planning (ERP), Kanban, Rekayasa Ulang Proses Bisnis

Abstract

Sahana Bali Craft, a handicraft company that produces woven bags typical of Tengenan Village, Karangasem Regency, Bali. The results of interviews and observations revealed that this company faced several obstacles, namely, recording production and calculating costs was still done manually, the application of the Make to Order concept was not well integrated, and the company did not have an ERP system and reengineering was carried out. This research recommends the implementation of re-engineering as an effort to improve business process efficiency with the ASAP and Kanban methods. The ASAP method is used in designing ERP systems to optimize costs, time, and available resources, while the Kanban method is applied in project management at the business blueprint and realization stages. Business process engineering has been tested with the UAT method on 20 respondents from the company and shows 1320<1718<1760 or the business process of the proposed system is considered positive.

Keywords: Accelerated SAP (ASAP), Enterprise Resource Planning (ERP), Kanban, Business Process Re-engineering

1. Introduction

The development of science in the field of information and communication allows the development of various tools that can help information technology continue to grow. The acquisition or dissemination of information in the business field is a benefit of this development [1]. This can be seen from the application of Enterprise Resource Planning (ERP) which is a business application and is connected to various business units within a company in the form of a single system integrated with a platform as a flow of information [2]. The implementation of an ERP system needs to be done because the company uses a separate information system so that the way the system works is not effective and efficient in making strategic decisions [3].

Sahana Bali Craft is a handicraft company that produces woven Ata bags typical of Tengenan Village, Karangasem Regency, Bali. The company has implemented information technology for product sales, namely the use of the Shopify platform in selling products internationally and Berdu regionally.

Pre-research interviews and observations showed that the company did not have an Enterprise Resource Planning (ERP) system and was re-engineering. Other problems are the absence of a system to track production activities, the manual calculation of production costs, and the application of the Make to Order concept that has not been maximally integrated. These problems have hampered the company's operational efficiency, so it is necessary to use existing business process change management techniques to improve effectiveness, efficiency, and service, this is known as business process reengineering [4].

Previous research on ERP business process reengineering in a company is seen in research [5] where the submission and adjustment of business processes with Odoo V.12 and its development using the Business Process Reengineering (BPR) method are carried out so that the results of this research are in the form of adding product offering features, improving the sales order process, and implementing online invoicing. In research [4] implemented Odoo V.12 reengineering in the inventory module with the Business Process Reengineering (BPR) method with the results of improving business processes in receiving raw materials, product registration, shipping, and reporting. Next, in [6] research using the ASAP method was implemented in the production, purchasing, sales, and storage of goods using the Dolibarr application, and the test results showed a fairly successful ERP implementation. In [7] research, re-engineering was carried out on stores affected by Covid-19 using the Rapid Application Development (RAD) method and Odoo V.13 and showed that the business processes that had been engineered were successfully applied to the system. In [8] research, the Odoo application was applied in Supply Chain Management in the Sales module with the ASAP method and resulted in the implementation of a system that was tested quite successfully.

Based on the previous description, the author wants to explore research on business process reengineering of ERP systems and help provide business process proposals that have an impact on the company by combining 2 methods, namely, Accelerated SAP (ASAP) and Kanban. The reason for choosing the ASAP method is that it can help design an effective and efficient ERP system implementation [9] and Kanban in carrying out project management to keep the work that needs to be done in the ASAP method on track [10]. In the Kanban method, not all processes in the Work in Process (WIP) must be skipped because this depends on the task being done and the needs [11]. The selection of the ERP system in this study is based on the provision of modules consisting of e-commerce and websites, financial management, inventory management, production management, and purchasing management, as well as features that can be customized or customized.

2. Research Method / Proposed Method

This research methodology describes a series of stages used as a flow which can be seen in Figure 1.

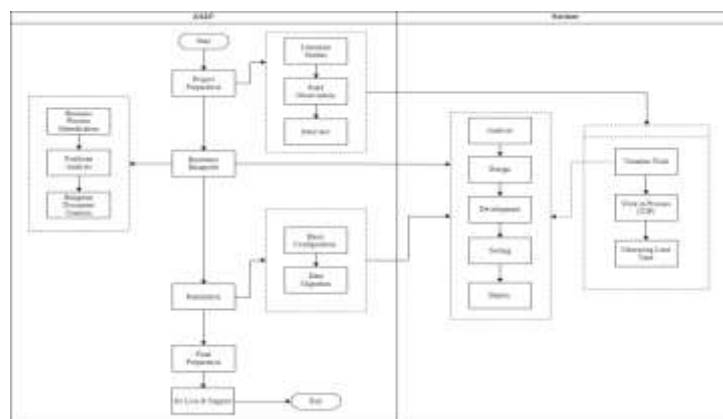


Figure 1. Stages and How the Research Method Works

The stages of this research consist of project preparation which includes literature studies, field observations, and interviews. The business blueprint stage consists of business process identification, fishbone analysis, and blueprint document creation. The Realization stage consists of basic configuration and data migration. At the business blueprint and realization stages, in identifying the tasks that are carried out, the Kanban method visualizes work, then in the work in process, analysis, design, development, testing, and deploy are carried out, and the length of work is determined in measuring lead time. The realization stage has been passed, then the final preparation is carried out and ends with go live and support.

2.1. Project Preparation

At this stage, initial planning is carried out which includes identifying business needs, the objectives of the project, risk analysis, and the required resources. The steps of this stage are as follows.

2.1.1. Interview

Interviews in this study were conducted only with the company owner, because when the author tried to ask these questions with 4 staff members (accountant, customer service, head of production, and production member), they suggested that the questions be asked to the company owner on the grounds that he was the one who knew the ins and outs of the company. The questions asked were related to the company's profile, background, and ongoing business processes, as well as questions related to the modules (e-commerce and website, accounting, inventory, purchase, and manufacture) in the ERP system to be implemented by the company.

2.1.2. Field Observations

Field observations are carried out by directly seeing the business processes that run in the company so that the author can match the results of interviews with the real results in the field with the supervision of the owner or company staff.

2.2. Business Blueprint

At this stage, a re-analysis of the company's business processes is carried out which aims to understand specific business needs and design an ERP system solution that suits the company's needs. The steps of this stage are as follows.

2.2.1. Business Process Identification

At this stage, the results of the project preparation stage are identified and translated into business processes in the ERP system used.

2.2.2. Fishbone Analysis

This stage will determine the direction of ERP system development in the Sahana Bali Craft, such as whether the features available in the ERP system are needed or not.

2.2.3. Blueprint Document Creation

This stage will implement the ERP system solution design that will be applied to the company from the modules that have been determined previously.

2.3. Realization

At this stage, the ERP system configuration is carried out based on the design that has been compiled at the business blueprint stage. The steps in this stage are as follows.

2.3.1. Basic ERP System Configuration

At this stage, the configuration required in the ERP system includes the installation of the required modules, adding and managing user access rights, as well as other settings such as e-mail and company profile.

2.3.2. Data Migration

At this stage, the master table contained in each module applied to the system is identified and the adjustment process is carried out between company data and the data

required in the master table. The sequence of data migration in each module starts from the accounting, inventory, manufacture, purchase, and website and e-commerce modules.

2.4. Visualizing Workflow

At this stage, an analysis of the task work in the business blueprint and realization stages is carried out, and a list of jobs (tasks) that need to be completed. At this stage, the kanban board and sticky note models will be determined, which can be seen in Figure 2 and Table 1 below.

Kanban Board Hakayasa Using Proses Bisnis ERP Pada Sahana Bali Craft						
Task	Analysis	Design	Development	Testing	Deploy	Done
			Work in Progress			

Figure 2. Kanban Board

Table 1 Sticky Note Legend

Sticky Note Color	Symbol	Note
	✓	Tasks that await the processing of the previous task.
	✓	Tasks that will be done next.
	✓	Tasks that must take precedence

2.5. Work In Process (WIP)

At this stage, the maximum number of tasks available in each column on the Kanban board at the same time is determined. The components in this stage are as follows.

2.5.1. Analysis

At this stage, analysis is carried out based on interview data and field observations, so that the output of the ERP system and the workflow can be defined.

2.5.2. Design

At the stage of designing architecture and user access rights for the business blueprint stage website implementation design (UI/UX) and user access rights for the realization stage.

2.5.3. Development

At this stage, implementation is carried out based on the design results of the ERP system used with agreement from the company regarding the utilization of various components available in the system.

2.5.4. Testing

At this stage, testing is carried out on the ERP system which includes unit, integration, system, and acceptance testing. The purpose of this stage is to check whether the system is following the needs and specifications that have been determined.

2.5.5. Deploy

At this stage, the ERP system that has tested all configuration results and company data has entered the system so that the results of reengineering have been realized in the system.

2.6. Measuring Lead Time

At this stage, the length of work available in the business blueprint and realization stages will be determined with the aim that the work in the two stages can be carried out and does not interfere with each other.

2.7. Final Preparation

At this stage, the database backup process is carried out on the ERP system and the hosting process, making it easier for companies to access it. In addition, at this stage, User Acceptance Testing (UAT) is also carried out, which consists of more than 5 documents consisting of IT and website, accounting, inventory, purchase, and manufacture, as well as 1 questionnaire to see the impact of the ERP system used by the company.

2.8. Go Live and Support

At this stage, the ERP system has been activated and used in company operations, as well as monitoring and improvement during the implementation process several things must be corrected or evaluated.

3. Literature Study

This research uses related references, namely, journals, books, the internet, and company reports and research as a reference in developing ideas and concepts in it.

3.1. Enterprise Resource Planning (ERP)

Enterprise Resource Planning concluded in [12], [13], and [9] is defined as an integrated system in each department of the company, where this integration exchanges information that is useful in analyzing and providing high business accuracy for the company. A good ERP implementation can be implemented if the company has application tools and infrastructure, both software and hardware for managing data and information.

3.2. Odoo

Odoo is defined as an Enterprise Resource Planning software that is open source and includes all the applications that companies need [4]. One of the advantages of Odoo is that this software can combine various modules which can help developers in designing an application . Odoo can be run in a cloud-based system, so companies can access it wherever they are.

3.3. Business Process Reengineering

Business process re-engineering is defined as a process of radically reorganizing business processes and fundamentals that aim to improve dynamically to provide benefits to the company and the parties involved in it [14].

3.4. Accelerated SAP (ASAP)

Accelerated SAP (ASAP) is a methodology utilized to accelerate the implementation of the SAP R/3 system developed by SAP [9]. A step-by-step approach is a way this method works, so it can be used in simplifying the implementation process and reducing the length of time to complete a project.

3.5. Kanban

Kanban is a project management method by visualizes workflows that utilize boards, columns, or kanban cards in the kanban board media in the process of visually managing workflows and tasks [15].

4. Result and Discussion

This research has resulted in the form of interview results, fishbone analysis, blueprint documents, Production Cost Management modules, data migration and user access rights, and UAT test results. The following are some discussions of the results of this research.

4.1. Interview

Interviews in this study only involved the company owner as described in chapter 2.1.1. This stage produces a company profile, the company's existing business processes, and determines the features used in each module in the ERP system to be implemented.

4.2. Kanban Business Blueprint

At the Business Blueprint stage of applying the Kanban method, there are limitations in the process consisting of, the basis for making blueprint documents is the features of each module used based on the results of interviews, tasks that have priority status (red sticky notes) must be completed first, and the basis for making business processes and fishbone is based on the results of interviews. All tasks that have been done will be sent directly to the company so that if there are improvements, changes can be made to the task.

4.2.1. Iteration 1: Business Process Identification

At this stage, the tools used are flowcharts with a processing time of 1 day. At this stage, an analysis is carried out related to the modules that will be used in the company and the flow of business processes (analysis) based on the results of interviews and the design process (design) of the flow of business processes in the form of flowcharts based on the results of the analysis. The following is Table 2 of the process that is passed at this stage.

Table 2 Iteration 1: Business Process Identification

Kanban Board Business Process Reengineering ERP at Sahana Bali Craft						
Task	Work in Process					Done
	Analysis	Design	Development	Testing	Deploy	
Business Process Identification	√	√				√
Fishbone Analysis	√	√				
Blueprint IT and Website, Accounting, Inventory, Purchase, Manufacture	√	√				

4.2.2. Iteration 2: Fishbone Analysis

At this stage, the tool used is a fishbone diagram with a processing time of 1 day. This stage analyzes the various factors that affect the quality of performance and business in the company (analysis) based on the results of interviews and the design process (design) in the form of a fishbone diagram shown in Table 3 below.

Table 3 Iteration 2: Fishbone Analysis

Kanban Board Business Process Reengineering ERP at Sahana Bali Craft						
Task	Work in Process					Done
	Analysis	Design	Development	Testing	Deploy	
Business Process Identification	√	√				√
Fishbone Analysis	√	√				√
Blueprint IT and Website, Accounting, Inventory, Purchase, Manufacture	√	√				

4.2.3. Iteration 3: IT and Website Blueprint up to Iteration 7: Blueprint Creation

At this stage, the tool used is a flowchart with a processing time of 2 days each. At this stage, analysis is carried out related to the various features used in the ERP system (analysis) based on the results of interviews, the design process in the form of flowchart diagrams, and the creation of blueprint documents for each of these modules shown in Table 4 below.

Table 4 Iteration 3: IT and Website Blueprint up to Iteration 7: Blueprint Creation

Kanban Board Business Process Reengineering ERP at Sahana Bali Craft						
Task	Work in Process					Done
	Analysis	Design	Development	Testing	Deploy	
Business Process Identification	✓	✓				✓
Fishbone Analysis	✓	✓				✓
Blueprint IT and Website, Accounting, Inventory, Purchase, Manufacture	✓	✓				✓

4.3. Production Cost Management

Production Cost Management in this research is a module developed by the author because this module is not available in the Third Party module in Odoo. This module aims to calculate the amount of production costs incurred by the company. The following are the program codes 1 and 2 of the module as well as the views of this module. The result of this module can be seen in Figure 3.

```

Class ProductionCost:
  Properties:
    name: String
    title: String
    product_id: Integer
    original_price: Float
    quantity_ordered: Float
    income: Float
    labor_cost: Float
    ovd_cst: Float
    orig_quantity_ordered: Float
    component_line_ids: List
    worker_count: Integer
    worker_total_cost: Float
    component_total_cost: Float
    grand_total_cost: Float

  Methods:
    compute_component_total_cost():
      For each record in self:
        Calculate component_total_cost as sum of
        component_price_subtotal of each component in component_line_ids

    compute_worker_total_cost():
      For each record in self:
        Calculate worker_total_cost as labor_cost
        multiplied by worker_count

    compute_income():
      For each record in self:
        Calculate income as original_price multiplied by
        quantity_ordered

    compute_grand_total_cost():
      For each record in self:
        Calculate grand_total_cost as sum of ovd_cst,
        labor_cost multiplied by worker_count, and sum of
        component_price_subtotal of each component in component_line_ids
    
```

Source Code 1. Production Cost Management Model

```

View "Production Cost Form":
  Properties:
    name: "Production Cost Form"
    model: "mrp_product_cost.production_cost"

  Elements:
    Form string="Production Cost Calculate":
      Groups:
        Group:
          Fields:
            - name (readonly)
        Group:
          Fields:
            - title
            - product_id
            - quantity_ordered
            - original_price
            - worker_count
            - labor_cost
            - ovd_cst
            - income (readonly)
        Notebook:
          Page string="Components" name="components":
            Field name="component_line_ids"
            widget="one2many_list" options="{ 'editable': true }":
              Tree editable="bottom":
                Fields:
                  - product_id
                  - component_quantity
                  - component_price
                  - component_price_subtotal
            Subtotal:
              Group col="4" colspan="2":
                Fields:
                  - worker_total_cost
                  - ovd_cst (store=True)
                  - component_total_cost
            Total:
              Group col="4" colspan="2":
                Field name="grand_total_cost" readonly="1"
            widget="monetary" options="{ 'currency_field': 'currency_id' }"
    (readonly)
    
```

Source Code 2. Production Cost Management Views

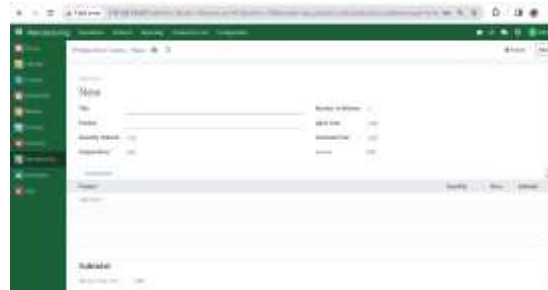


Figure 3 Production Cost Management

4.4. Business Process Reengineering

In this research, business process re-engineering makes adjustments and additions to the business processes that have been implemented by the company and compares them with business process reengineering. The following is a business process re-engineering that has been carried out at this company.

4.4.1. Product Order by Customer

In this section, customers place product orders from product selection to payment. Table 5 is a comparison between Sahana Bali Craft's existing business processes with the re-engineering as well as its implementation in Sahana Bali Craft's ERP system shown in Figures 4 and 5.

Table 5 Checkout Comparison

Business Process Existing	Business Process Reengineering
1. Customers make a product selection, if they are interested, they can fill in their data (name, address, and telephone number).	1. Customers make a product selection, if they are interested, they can fill in their data (name, address, and telephone number).
2. Customers who have completed their data can make payments via bank transfer.	2. The company confirms the order made by the customer via E-mail or WhatsApp.
3. Customers who have made a payment can confirm their payment to the company through the company website or WhatsApp.	3. Customers can also confirm their order through the company website or WhatsApp.
4. The company that has received the order and payment from the customer can process the customer's order.	4. For Customers who have confirmed the order, the company can create a Sales Order document, and then they can create a draft customer invoice to be confirmed via E-mail or WhatsApp.
5. The company after processing the customer's order will send the order via courier (J&T).	5. Customers who have made a payment and confirmed the payment, then the company can process the customer's order.
6. Customers can submit an order return if the order condition is damaged.	6. The company after processing the customer's order will send the order via courier (JNT) and record it as a delivery order on the system.
	7. Customers can submit an order return if the order is damaged.



Figure 4 Checkout



Figure 5 Sales Order

4.4.2. Production Process

This part is carried out by the production (manufacturing) division of the company. The following is a comparison between Sahana Bali Craft's existing business process and reengineering in Table 6 and its implementation in Figures 6 and 7.

Table 6 Production Process Comparison

Business Process Existing	Business Process Reengineering
1. The company calculates production cost expenses manually.	1. The company calculates the production cost expenditure on production cost.
2. The company carries out the production process which includes the process of drying, drying, and curing without recording either in the system or manually.	2. The company produces semi-finished products on Child Manufacturing Order by taking products (internal transfer) at the warehouse.
3. The company inspects the (semi-finished) product, if the product is damaged, a remanufacturer will be carried out and the	3. In the production process with raw materials that are not

<p>product will be repaired, however, the product will be sold to another party.</p> <ol style="list-style-type: none"> For semi-finished products that do not have defects, the finishing process can be carried out. The company checks the product again before sending it to the courier. In products that are damaged after the finishing process, the process of replacing damaged components is carried out. Products that are not damaged after the finishing process, the company can carry out the shipping process via courier 	<p>available in the warehouse, the company can submit a Request for Quotation to the vendor and if approved, a Purchase Order is automatically generated and the process of payment and delivery of raw materials is carried out.</p> <ol style="list-style-type: none"> Raw materials that are available in the warehouse will be recorded in the semi-finished product production process. The semi-finished product is inspected and if defects are found, the product is recorded as a scrap product, but if during the inspection it is found otherwise, the process continues on the Source Manufacturing Order. At the Source Manufacturing Order, the process of taking raw materials from the warehouse is carried out, if it is not available, the process will be the same as in point no. 3. The production results on the Source Manufacturing Order are inspected if defects are found, the product will be recorded as an Unbuild Order, and a replacement will be made for the damaged component only. For products produced from Source Manufacturing Order, the product can be sent by courier.
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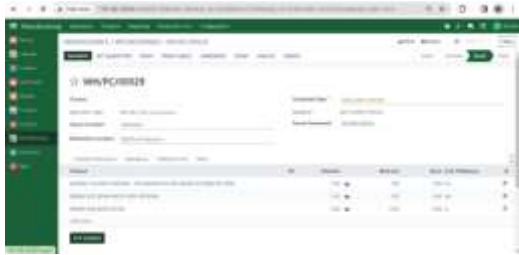


Figure 6 Raw Material Retrieval



Figure 7 Production Process

4.4.3. Raw Material Purchase

In this section, the company orders products to vendors, where the products ordered are products that are used as raw materials in the production process. The following is a comparison between Sahana Bali Craft's existing business process and reengineering in Table 7 and its implementation in Figures 8 and 9.

Table 7 Raw Material Purchase Comparison

Business Process Existing	Business Process Reengineering
<ol style="list-style-type: none"> The company submits a purchase offer to the vendor. The agreed offer is processed for payment. Vendors process company orders. Vendor sends the order to the company. 	<ol style="list-style-type: none"> The company submits a Request for Quotation to the vendor. On a Request for Quotation that has been agreed by the vendor and the company, a Purchase Order document can be issued. The company makes a draft invoice document and sends it to the vendor for confirmation. The company that has received confirmation from the vendor continues the account payable process.



Figure 8 Request for Quotation



Figure 9 Purchase Order

4.5. Kanban Realization

The Kanban method in the stages of limitation in the process, namely, all tasks with yellow sticky notes are done on localhost, the content on the website follows the website that already exists in the company, the order of data migration starts from data in IT, accounting, inventory, purchasing, and manufacturing, UAT documents are based on blueprint documents

related to the features to be tested, and data migration, configuration, and successful scenario experiments can be carried out SOD installation (hosting process).

4.5.1 Iteration 1: Make a Company Website

In this section using tools consisting of use case diagrams and Figma applications in designing the website user interface with a working time of 7 days. In this section, analysis is carried out related to the features needed in the website (analysis) based on the results of interviews, the process of designing the website user interface (design), implementation in the form of moving website components from the ERP system (development), testing conducted by the author to find out whether the website is running properly (testing), to the hosting process so that the company can access the website from the ERP system used shown in Table 8 below.

Table 8 Iteration 1: Make Company Website

Kanban Board Business Process Reengineering ERP at Sahana Bali Craft						
Task	Work in Process					Done
	Analysis	Design	Development	Testing	Deploy	
Make Company Website	✓	✓	✓	✓	✓	✓
Migration Data IT and Website, Accounting, Inventory, Purchase, Manufacture	✓			✓	✓	
Preparation of IT and Website User Acceptance Testing (UAT) Documents, Accounting, Inventory, Purchase, Manufacture	✓					

4.5.2 Iteration 2: Migration Data IT and Website up to Iteration 6: Migration Data Manufacture

This section has a processing time of 1 day for each module. In this section, an analysis is also carried out regarding the columns needed in a table (analysis), after the data is entered into these columns, then testing the import of data contained in the ERP system is carried out to ensure that each column has been adjusted to the required data (testing). Successful testing then, the data can be added to the system (deploy) shown in Table 9 below.

Table 9 Iteration 2: Migration Data IT and Website up to Iteration 6: Migration Data Manufacture

Kanban Board Business Process Reengineering ERP at Sahana Bali Craft						
Task	Work in Process					Done
	Analysis	Design	Development	Testing	Deploy	
Make Company Website	✓	✓	✓	✓	✓	✓
Migration Data IT and Website, Accounting, Inventory, Purchase, Manufacture	✓			✓	✓	✓
Preparation of IT and Website User Acceptance Testing (UAT) Documents, Accounting, Inventory, Purchase, Manufacture	✓					

4.5.3 Iteration 7: Preparation of IT and Website UAT up to Iteration 11: Preparation of Manufacture UAT

This section has a working time of 2 days for each module. In this section, the process of analyzing blueprint documents in each module and creating UAT documents contains

procedures on how to access and use features in the blueprint of each module shown in Table 10 below.

Table 10 Iteration 7: Preparation of IT and Website UAT up to Iteration 11: Preparation of Manufacture UAT

Kanban Board Business Process Reengineering ERP at Sahana Bali Craft							
Task	Work in Process					Done	
	Analysis	Design	Development	Testing	Deploy		
Make Company Website	✓	✓	✓	✓	✓	✓	
Migration Data IT and Website, Accounting, Inventory, Purchase, Manufacture	✓			✓	✓	✓	
Preparation of IT and Website User Acceptance Testing (UAT) Documents, Accounting, Inventory, Purchase, Manufacture	✓					✓	

4.6. Testing and Questionnaire Results

Testing in this study using the UAT method was carried out with a total of 20 respondents from the company who aimed to determine the acceptance of system implementation at Sahana Bali Craft. The respondents consisted of the owner, accountant, customer service, head of production, and 16 production staff. Testing begins with showing a demo of the system to respondents, then a testing questionnaire containing 22 questions with 5 aspects, namely, aspects of content, modules, multimedia elements, navigation, and usability. The results of the questionnaire that have been collected are carried out UAT calculations with Likert scale measurements where the calculation process is contained in Table 11 and the results of the process are interpreted in Figure 10.

Table 11 Likert Scale Measurement Process

Stage 1: Calculation of questionnaire responses for each aspect	Stage 2: Calculation of questionnaire response scores	Stage 3: Calculation of the total score for all respondents	Stage 4: Calculation of the total score of all respondents	Stage 5: Calculation of score interpretation
- Total responses 1 = 0 + 0 + 0 + 0 + 0 = 0	- Total response score 1 = 1 x 0 = 0	- Maximum Score: 5 x 22 questions = 110	- - Maximum Score: 110 x 20 respondents = 2200	- 1760 < score < 2200, very positive (system rated as successful)
- Total responses 2 = 0 + 0 + 0 + 0 + 0 = 0	- Total response score 2 = 2 x 0 = 0	- Minimum Score: 1 x 22 questions = 22	- - Minimum Score: 22 x 20 respondents = 440	- 1320 < score < 1760, meaning positive (the system is rated moderately successful)
- Total responses 3 = 18 + 19 + 21 + 19 + 31 = 108	- Total response score 3 = 3 x 108 = 324	- Median Score: 2 x 22 questions = 44	- - Median Score: 44 x 20 respondents = 880	- 880 < score < 1320, meaning negative (system rated as less successful)
- Total responses 4 = 57 + 55 + 65 + 54 + 35 = 266	- Total response score 4 = 4 x 266 = 1064	- Quartile Score: 3 x 22 questions = 66	- - 1st Quartile Score: 66 x 20 respondents = 1320	- 440 < score < 880, very negative (system rated as unsuccessful)
- Total responses 5 = 5 + 6 + 14 + 7 + 34 = 66	- Total response score 5 = 5 x 66 = 330	- Quartile III Score: 4 x 22 questions = 98	- Quartile III Score: 88 x 20 respondents = 1760	
	- Total overall score = 0 + 0 + 324 + 1064 + 330 = 1718			

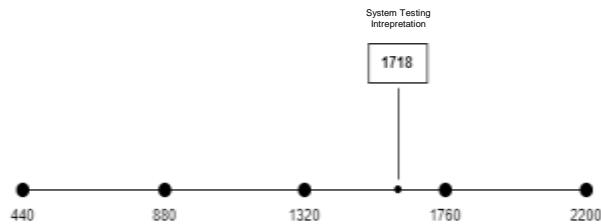


Figure 10 System Testing Interpretation

5. Conclusion

The implementation of business process reengineering at Sahana Bali Craft begins with interviews conducted only with the company owner, then analyzing existing business processes, adjusting, and adding business processes that will be submitted to the company, then implemented in the ERP system (Odoo V.16) and compared with existing business processes, and measuring the impact with the UAT method on 20 respondents from the company consisting of the owner, accountant, customer service, head of production and 16 production staff and obtaining results $1320 < 1718 < 1760$ which means it is considered positive or quite successful for the company. This research combines the ASAP and Kanban methods where at the Business Blueprint stage, the Kanban method is used in the identification of business processes, fishbone analysis, IT blueprint, and website creation. At the Realization stage, the Kanban method is used in the work of creating a company website, migrating IT data and websites to manufacturing, and in preparing IT User Acceptance Testing (UAT) documents and websites to manufacturing.

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