

Accounting Systems Analysis, Design, and Business Process Using BPMN to Support the Business Sustainability of Queen Cell

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ABSTRACT

Purpose: This study analyses the business processes and transactions of Queen Cell, a micro-enterprise that sells mobile credit, electricity tokens, e-wallet top-ups, game top-ups, and money-transfer services, and designs an accounting system that fits its transaction environment. It also identifies what the business needs in order to record transactions in an orderly way and to verify customer data before a transaction is executed.

Method: A qualitative descriptive case study was conducted. Data were gathered through a semi-structured interview with the owner, observation of transaction handling and data entry, and documentation of transaction records. The data were analysed with the Miles and Huberman interactive model (data reduction, data display, and conclusion drawing/verification). The current (as-is) process was mapped and a proposed (to-be) process was designed with a Data Flow Diagram (DFD) and Business Process Model and Notation (BPMN), and the accounting design followed the Indonesian Financial Accounting Standards for Micro, Small, and Medium Entities (SAK EMKM).

Findings: Queen Cell kept no accounting records and relied solely on the transaction history provided by the provider application; business and personal money were not separated. The design comprises a context diagram, cycle-level DFDs, and BPMN models for four cycles: inventory (balance) purchasing, sales, payment, and recording. Exclusive gateways for document completeness and for matching system data with transaction evidence act as control points that prevent wrong destination numbers and unrecorded transactions from flowing into the books.

Implication: The design gives the owner a practical basis for linking daily operations with journal entries, the general ledger, and SAK EMKM-based financial statements, so that profit, cash, and capital use can be monitored and the business can be managed sustainably. As a woman-owned micro-enterprise serving the digital transaction needs of its neighbourhood, Queen Cell also illustrates contributions to SDG 5 (gender equality) and SDG 8 (decent work and economic growth).

Originality: Unlike earlier design studies of coffee shops, food stalls, and village-owned enterprises, this study models a multi-service digital-transaction micro-business, explicitly addressing input-error risk and linking BPMN and DFD models to SAK EMKM recording requirements.

Keywords: business process modelling, digital transactions, business sustainability, SAK EMKM, SDG 5, SDG 8.

JEL Classification: L26, M15, M41.

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1. INTRODUCTION

Micro, small, and medium enterprises (MSMEs) play an important role in economic activity, and the increasingly dynamic environment in which they operate means that owners can no longer focus on selling alone. They must also be able to record and manage the transactions that their sales generate. Under these conditions, financial information becomes essential because it shows the actual condition of the business and serves as the basis for decisions. [Adnyana and Lavianto \(2022\)](#) explain that information technology helps businesses improve effectiveness and efficiency while accelerating business processes. An accounting information system helps business actors record their activities and prepare financial statements more quickly, so that the information produced can be used to make sound decisions.

An accounting information system is concerned not only with recording transactions but also with collecting, storing, and processing data into information for decision making. For MSMEs, such a system is particularly important because unstructured recording leads to errors and makes it difficult for owners to obtain financial information quickly. [Hambali and Rizqi \(2025\)](#) show that the adoption of accounting information systems in MSMEs is associated with more accurate financial reports and faster presentation of information. In designing an accounting system, an understanding of the business process is also needed in order to describe the flow of business activities. One method that can be used for this purpose is Business Process Model and Notation (BPMN), a visual modelling standard that depicts the sequence of activities, the flow of work, the parties involved, and the decisions made in a business process. [Zaidah et al. \(2025\)](#) demonstrate that BPMN can describe financial processes more clearly and in a more structured way and can be used to compare an as-is process with a to-be process.

This need is highly relevant to Queen Cell, a business established in 2021 that provides digital transaction services such as mobile credit, electricity tokens, DANA e-wallet top-ups, game top-ups, money transfers, and other transaction services. With a turnover of approximately IDR 50 million per month, Queen Cell handles several types of transactions, each with different characteristics. These conditions make an orderly flow of recording and data management essential, so that each transaction can be traced and financial information can be used to monitor the development of the business. Previous studies have addressed accounting information system design in various settings. [Adnyana and Lavianto \(2022\)](#) designed a digital accounting information system for small and medium enterprises to support transaction recording and financial reporting, [Setiawan et al. \(2025\)](#) designed a BPMN-based accounting system for the Warkop Revo 99 coffee shop with reference to SAK EMKM, and [Zaidah et al. \(2025\)](#) applied BPMN in designing the accounting information system of the Pulotondo village-owned enterprise (BUMDes). Similar BPMN-based designs have been produced for cash receipts in MSMEs ([Azizah et al., 2025](#)) and for a garment business in Tasikmalaya ([Firdaus, 2022](#)), while [Ardiansyah et al. \(2025\)](#) developed a simple Excel-based accounting design for a food stall.

The case is also relevant to the Sustainable Development Goals (SDGs) adopted by the United Nations (2015). Queen Cell is owned and run by a woman, and it brings electricity token purchases, e-wallet top-ups, and money transfers to residents of her neighbourhood in Prasung Village who find it difficult to carry out such transactions on their own phones. Strengthening the record-keeping of such a business is therefore connected with SDG 5 (gender equality), in particular target 5.5 on women's full and equal participation in economic life and target 5.b on the use of enabling technology to promote the empowerment of women. It is also connected with SDG 8 (decent work and economic growth), in particular target 8.3 on the formalisation and growth of micro-enterprises and target 8.10 on expanding access to financial services for all. Orderly accounting records are a precondition for both: they allow a woman entrepreneur to show the performance of her business to lenders and partners ([Amanda & Rialdy, 2024](#)), and they make a micro-enterprise visible as a formal economic actor.

Although research on accounting information systems and BPMN is available, most of it has focused on coffee shops, food stalls, and organisations such as BUMDes. A digital transaction service business such as Queen Cell has very different characteristics because it runs several transaction

services at once, from mobile credit and electricity tokens to e-wallets, games, and money transfers. Each service depends on a destination number or account number keyed in by the operator, so a single input error can send value to the wrong party. This difference indicates a need to analyse and design an accounting system that is tailored to the business process of a digital transaction service. Accordingly, this study aims to analyse Queen Cell's current business process, identify its accounting system requirements based on its transaction activities, and design its business process using BPMN as the basis for a more structured accounting system. The research questions are: (1) what are the business process and transaction activities of Queen Cell; (2) what accounting system requirements fit those activities; (3) how can the process be modelled using BPMN and DFD; and (4) how can the proposed design support financial reporting and business sustainability.

The study is expected to provide practical benefits for Queen Cell through a business process and accounting system design that can serve as the basis for more structured transaction recording and that helps the owner obtain financial statements for monitoring the activities and growth of the business. Academically, it offers a reference on the use of BPMN in business process analysis and accounting system design for digital transaction services. The scope is limited to the analysis of Queen Cell's business process and transaction activities and to the design of an accounting system related to operations and financial reporting. The modelling covers the as-is and to-be processes; full application development and long-term system testing are outside the scope of this article. The remainder of the article presents the literature review, the research method, the results of the business process analysis and the accounting system design, the link between the design and business sustainability, and the conclusions.

2. LITERATURE REVIEW

2.1 Accounting Systems

An accounting system consists of the records, forms, and reports that provide financial information to management ([Faridawati et al., 2024](#); [Suryaningrum, 2024](#)). It processes, records, and stores data in order to supply information for decision making and internal control. An accounting information system (AIS) can be used to reduce recording errors and to keep financial data secure, whereas purely manual recording tends to weaken the control of transactions ([Faridawati et al., 2024](#)). Empirical studies in Indonesia show that accounting information systems in MSMEs improve report accuracy, the speed of information, and tax compliance ([Hambali & Rizqi, 2025](#)), and that a properly designed system can be built even for very small entities using low-cost tools ([Adnyana & Lavianto, 2022](#); [Ardiansyah et al., 2025](#)). Internal control over cash receipts and disbursements is a central element of such systems, even in organisations with few staff ([Nujulina et al., 2025](#)). These weaknesses were present at Queen Cell, which had no recording system and was exposed to errors when customer numbers were keyed in.

2.2 Business Process Model and Notation (BPMN)

BPMN is a notation system for modelling business processes. Its elements include flow objects (events, activities, and gateways), connecting objects (sequence flows, message flows, and associations), swimlanes (pools and lanes), and artefacts (data objects, text annotations, and groups). An analysis of seven online BPMN repositories found that collaboration diagrams are the most widely used model type, and that the elements most frequently used in them are sequence flows, plain tasks, message flows, lanes, end events, and exclusive gateways ([Compagnucci et al., 2024](#)). BPMN diagrams are also recognised as a tool that improves business process management and team collaboration because all participants share the same picture of the work ([Nuzulita et al., 2020](#); [Mariya et al., 2024](#)).

These findings guided the present study in using BPMN to model Queen Cell's business process so that the resulting models remain simple while still following good modelling practice. BPMN was used to describe the transaction flow of Queen Cell, from the customer's request, the validation of the destination number, and payment, to the recording of the transaction, with exclusive gateways serving as control points that minimise input errors. In accounting design studies, BPMN has been combined with SAK EMKM-based recording for coffee shops ([Setiawan et al., 2025](#)), cash receipts ([Azizah et al., 2025](#)), garment production ([Firdaus, 2022](#)), and a village-owned enterprise ([Zaidah et al., 2025](#)).

2.3 Business Sustainability

Business sustainability refers to an organisation's efforts to achieve its long-term goals by adapting to external pressures. This view is consistent with Resource Dependence Theory, in which MSMEs are regarded as resource-constrained entities that need internal resources such as an accounting information system (Lutfi et al., 2022). Such resources help an organisation achieve greater organisational impact and remain competitive. Studies of Indonesian MSMEs show that the implementation of financial accounting standards for micro, small, and medium entities is related to business sustainability (Amanda & Rialdy, 2024), and that the quality of accounting information systems supports the sustainability of financial institutions (Purnama et al., 2024). The implementation of an AIS also has a positive effect on the continuity of MSME performance (Faridawati et al., 2024). Accordingly, the accounting system and business process models for Queen Cell were designed to support long-term business continuity through time efficiency, control of service balances, and accurate financial information.

2.4 SAK EMKM

SAK EMKM was issued by the Financial Accounting Standards Board of the Institute of Indonesian Chartered Accountants (IAI) to meet the financial reporting needs of micro, small, and medium entities that cannot meet the requirements of the more complex standards (Handayani & Suryaningrum, 2021). Financial statements under SAK EMKM are prepared on the accrual basis and on the going-concern and business-entity concepts, and consist of a statement of financial position, an income statement, and notes to the financial statements, measured mainly at historical cost (Ikatan Akuntan Indonesia, 2016). Literature reviews of SAK EMKM implementation show that many MSMEs still struggle to apply it because of limited accounting knowledge and the absence of basic records (Ayem et al., 2024), while case studies demonstrate that the standard can be applied in small service businesses once transaction records are available (Hati et al., 2022).

SAK EMKM was used as the reference for Queen Cell because it is a micro-enterprise. The design, therefore, includes a chart of accounts, journals, a general ledger, and financial statements prepared according to the recognition, measurement, and presentation principles of SAK EMKM, so that they reflect Queen Cell's financial performance.

2.5 Research Focus

The primary focus of this study is to analyze financial transactions within MSMEs, with an emphasis on system analysis and BPMN models. Accordingly, the research focus is stated as follows:

RF: How can an accounting system based on SAK EMKM and business process modelling using BPMN support the business sustainability of the Queen Cell micro-enterprise?

The research framework is shown in Figure 1. It starts from the existing condition of Queen Cell, in which transactions are recorded manually or not at all, moves to the design of an SAK EMKM-based accounting system (chart of accounts, journals, ledger, and financial statements), continues with the modelling of the business process in BPMN, and ends with the expected contribution to the sustainability of the business.

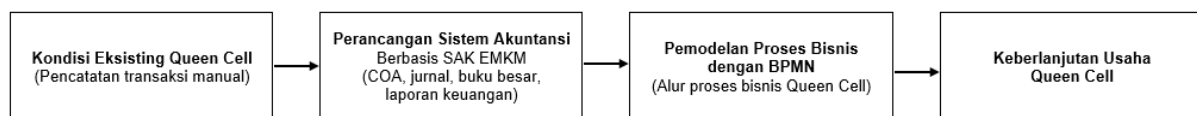


Figure 1. Research Framework

Source: Compiled by the authors (2026) – in Bahasa Indonesia

3. RESEARCH METHOD

3.1 Research Design

This study used a qualitative descriptive approach with a case study design. The approach was chosen because the aim was to understand in depth the business process, all transaction activities, and the

accounting system requirements of Queen Cell, a micro-enterprise providing digital transaction services whose characteristics differ from those of ordinary mobile-phone counters. The problem studied is exploratory and contextual, so it cannot be captured adequately by numerical measurement alone. According to [Sugiyono \(2013\)](#), qualitative methods are used to study objects in their natural setting, with the researcher as the key instrument, triangulated data collection, inductive analysis, and findings that emphasise meaning rather than generalisation. The case selected offers a range of digital transaction services (mobile credit, electricity tokens, DANA top-ups, game top-ups, and transfers) whose transaction flows had not been recorded in a structured way.

This approach is consistent with [Hati et al. \(2022\)](#), who designed SAK EMKM-based financial statements for a small enterprise, and with [Fitriani et al. \(2026\)](#), who analysed the application of an SAK EMKM-based accounting information system in MSMEs. The study does not test hypotheses; instead, it analyses the as-is business process, identifies the accounting system requirements, and designs a to-be process using BPMN and Data Flow Diagrams (DFD). The study stops at the system design stage and does not cover the construction of an application or its implementation in Microsoft Excel; Excel-based development is outside the scope of this article and is treated as a separate output.

3.2 Sample and Data Collection

The research subject is Queen Cell, a micro-enterprise operating in the digital transaction services sector. The informant was selected purposively: the owner, Putri Maulidyah Hidayat, is directly responsible for operations, finances, and transaction recording. According to [Sugiyono \(2013\)](#), purposive sampling selects informants on the basis of specific considerations, namely the people regarded as knowing most about the object under study. In qualitative research, the number of informants is not determined statistically but by data saturation, that is, the point at which no new information emerges. In this study the key informant was the owner herself; supporting informants, such as staff involved in transactions, could be added when necessary. Because the owner is also a member of the author team, the other authors conducted the interview and the analysis, and the owner's statements were checked against transaction evidence to limit bias.

Data were collected with three techniques. First, a semi-structured interview with the owner of Queen Cell was held on 15 September 2026 from 09.00 to 09.28 Western Indonesian Time at Universitas Pembangunan Nasional "Veteran" Jawa Timur. The interview guide covered the background of the business, products and services, target customers, competitive advantages, potential, obstacles and risks, capital and sources of funds, the transaction process, financial recording, and expectations of the accounting system. The interview was conducted face to face and recorded with the informant's consent. Second, the transaction activities, service flow, and existing recording practices were observed in order to see directly how transactions are processed and recorded. Third, documentation was collected in the form of transaction records, the business profile, and other supporting documents to complement the interview and observation data.

The instruments used were an interview guide, a voice recorder, a notebook, and a camera. Ethical considerations were addressed by asking the owner's permission before the interview, explaining the purpose of the study, keeping personal data confidential, and using the data only for research purposes. Participation was voluntary, and the informant's identity could be anonymised if necessary. The researchers also ensured that no party would be harmed by the study.

3.3 Data Analysis

Data were analysed with the Miles and Huberman interactive model as described by [Sugiyono \(2013\)](#), consisting of data reduction, data display, and conclusion drawing and verification. Data reduction focused on Queen Cell's business process while keeping in view the accounting system that the business requires. The data were displayed in narrative form, in tables, and in business process diagrams, and conclusions were drawn by checking them against the actual conditions of the business process. This procedure follows [Hati et al. \(2022\)](#), who used a descriptive qualitative analysis to design an accounting system for an MSME, and [Fitriani et al. \(2026\)](#), who analysed the application of an accounting information system in MSMEs using technique and source triangulation.

The data on Queen Cell's business process were first identified, after which the as-is and to-be processes were modelled using BPMN and DFD. The models describe the arrangement of activities, the sequence of work, the parties involved, and the decisions made in the business process. BPMN

was used to show the workflow in detail and in an easily understood form, whereas DFD was used to show the flow of data and the relationships between external entities and the system. The accounting design followed SAK EMKM ([Ikatan Akuntan Indonesia, 2016](#)) and covered the identification of transactions, the journal, the general ledger, the statement of financial position, the income statement, and the notes to the financial statements. These steps follow [Hati et al. \(2022\)](#), who built an accounting system from opening balances to financial statements. The final output of this study is an accounting system design that can be implemented directly; its technical implementation in Excel is not discussed here.

Data credibility was established through source and technique triangulation and member checking. Data from interviews, observation, and documents were compared, and the informant was asked to confirm the conclusions drawn. After this confirmation, the credibility of the findings could be regarded as high, consistent with [Fitriani et al. \(2026\)](#), who used technique and source triangulation to ensure data credibility in qualitative MSME research.

The study has several methodological limitations. First, it examines a single case, so the results cannot be generalised to all digital transaction MSMEs; they apply to Queen Cell and similar businesses. Second, the study stops at design and BPMN and DFD modelling and does not include implementation in Microsoft Excel; the system has not yet been fully implemented or tested for effectiveness over time. Third, the data depend on the informant's recollection and documents, so incomplete documents or memory gaps may reduce accuracy. Fourth, the research period was short, and only the transactions occurring during that period could be observed. Nevertheless, the findings can serve as a basis for broader research, including Excel-based development.

4. RESULTS AND DISCUSSION

4.1 Profile and Current Situation of Queen Cell

Queen Cell is a micro-enterprise that sells digital services and is owned by a single person, Putri Maulidyah Hidayat. It is located on Jl. Mbah Sholeh, Prasung Village, RT 006 RW 003, Buduran, Sidoarjo, East Java. The business started operating in 2021 after the owner saw a large opportunity in her neighbourhood, where many residents needed digital transactions such as purchasing electricity tokens and mobile credit, transferring money between applications, and topping up online games.

"Many people around here still find it difficult to buy tokens or transfer money on their own phones, so they come to me. That is why I opened Queen Cell in 2021, and now it serves mobile credit, electricity tokens, DANA, game top-ups, and transfers." (Owner)

In this study, a qualitative descriptive approach using interviews and observation was applied to Queen Cell in order to obtain an in-depth understanding of its financial recording practice, focusing on its financial transaction cycles. The owner has high expectations that the system will help her keep more structured and transparent financial records and produce reports that are simple yet efficient, so that she can understand the real condition of the business more easily.

"So far it has been difficult for me to know my real financial condition, because I do not keep any records that would tell me. I hope that with this system I can find out the real financial condition of the business." (Owner)

The interview also showed that the owner had not separated business money from personal money and that the volume of small transactions made manual reconstruction of the month's results impractical. With turnover of about IDR 50 million per month spread over many low-value transactions, a missing or duplicated entry is difficult to detect without a systematic record.

"The money from sales and my own money are in the same place, and the balance in the application is used for everything. In a month the turnover is around fifty million rupiah, but I cannot say how much of that is profit." (Owner)

4.2 Context Diagram

A context diagram gives a simple picture of the relationships between external entities, inputs, and outputs of a system. It represents the whole system as a single process. As shown in Figure 2, the context diagram describes the relationships between Queen Cell's digital service system and the external entities involved in its transactions. Customers are external entities that interact directly with the system by ordering mobile credit, electricity tokens, and transfers and by making payments; they receive the credit, the token number, or the transfer receipt in return. The application or provider receives purchase and transfer requests and returns confirmations of the transaction and of the service balance. Banks and e-wallets receive payments or fund transfers and return payment confirmations. The owner enters transactions into the system and receives transaction status information and reports.

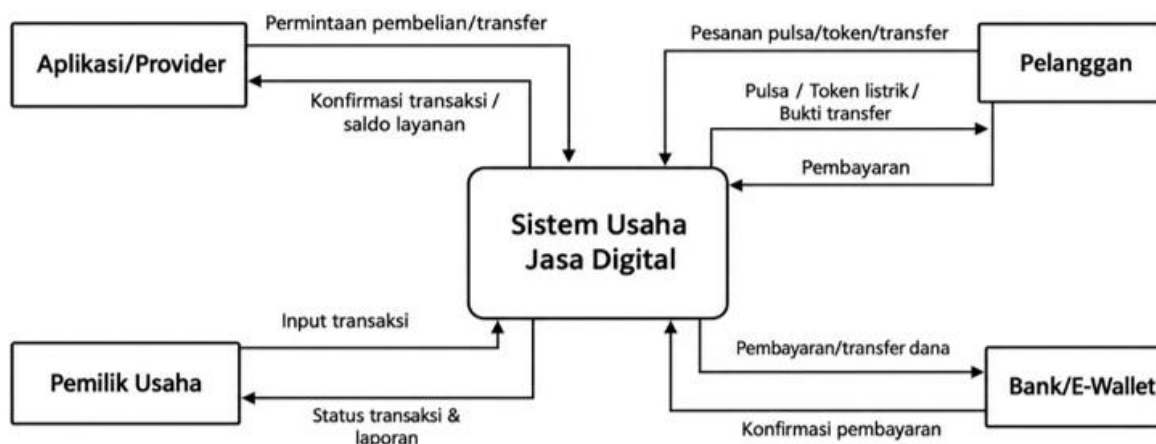


Figure 2. Context Diagram of the Queen Cell Digital Service System

Source: Compiled by the authors (2026) – in Bahasa Indonesia

Before the new system was introduced, Queen Cell kept no records at all, and the owner did not separate business and personal money. This made it difficult for her to know the true financial condition of the business. The context diagram therefore makes explicit, for the first time, which data enter and leave the business and which of them must be kept as accounting evidence.

"So far I have not kept any records for this business at all; I depend only on the transaction history in the application." (Owner)

The owner further explained that the provider application stores only the history of its own transactions, so cash payments received from customers and transfers made through the bank are not visible in a single place. The context diagram addresses this gap by bringing all four external entities into one recording boundary.

"The application only shows what I bought and sold through it. Cash from customers and transfers through the bank are not there, so if I want to check, I have to look in several places." (Owner)

4.3 Inventory (Balance) Purchasing Cycle

For a digital transaction service, "inventory" takes the form of service balances (deposits) held in provider applications that are later converted into credit, tokens, or transfers for customers. The interview revealed how purchases are made and who makes them.

"So far the purchasing is done only by me, through the application." (Owner)

The owner also explained that balances are topped up whenever they run low and that the proof of each top-up is kept only in the application's history, which is the main evidence that can be used to record the purchase.

"I top up the balance when it starts to run low, usually several times a week, depending on how busy it is. The proof is only the notification in the application; I have never written it down separately." (Owner)

As shown in Figure 3, the inventory purchasing cycle at Queen Cell involves the owner (and, where present, staff) and the supplier, that is, the distributor or provider organisation. The process begins when the owner orders inventory in the form of mobile credit, electricity tokens, and transfer balances directly through the application. The supplier processes the request and delivers the inventory together with a purchase note, and the owner approves and pays the supplier. Each payment is recorded in the general journal through the payment record, and the process produces information on cash outflows.

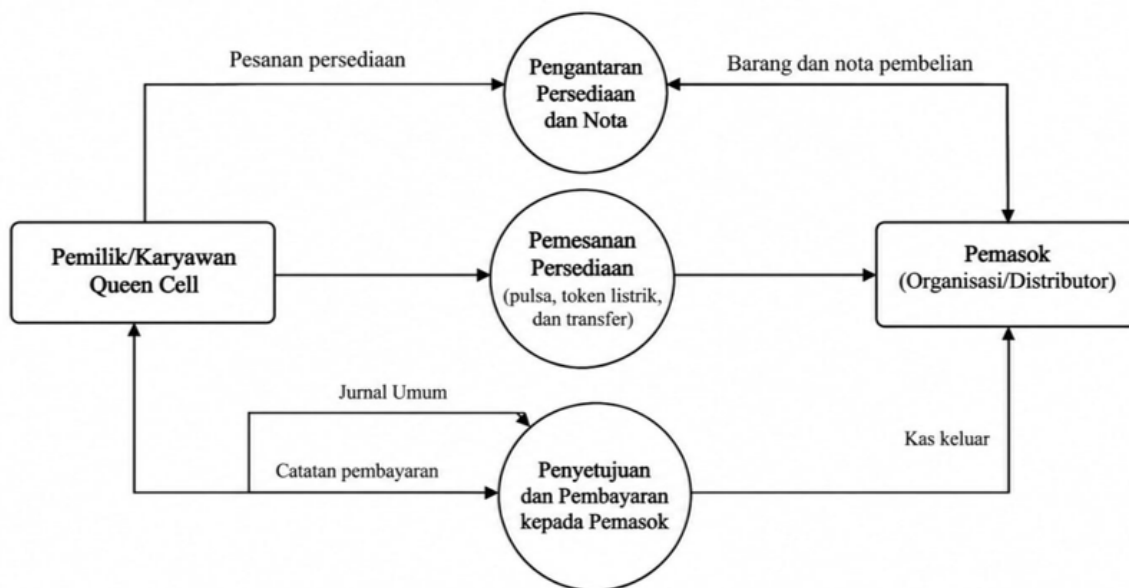


Figure 3. Inventory Purchasing Cycle

Source: Compiled by the authors (2026) – in Bahasa Indonesia

Figure 4 presents the BPMN model of the purchasing cycle. The process begins when the owner buys a balance or product through the application. The application receives the purchase request, verifies the payment, and returns the transaction data. Payment is processed through a bank or e-wallet and is checked by the system for validity. If the payment is valid, the application completes the purchase, sends the result, and notifies the owner, who receives the transaction information or account mutation and keeps the proof as an archive. If the payment is invalid, the application sends a failure notification and the payment must be checked again. From an accounting perspective, each successful top-up increases the service-balance account (an inventory-like current asset) and decreases cash or bank, while a failed top-up must not be recorded; the gateway in the model therefore separates events that change the books from those that do not.

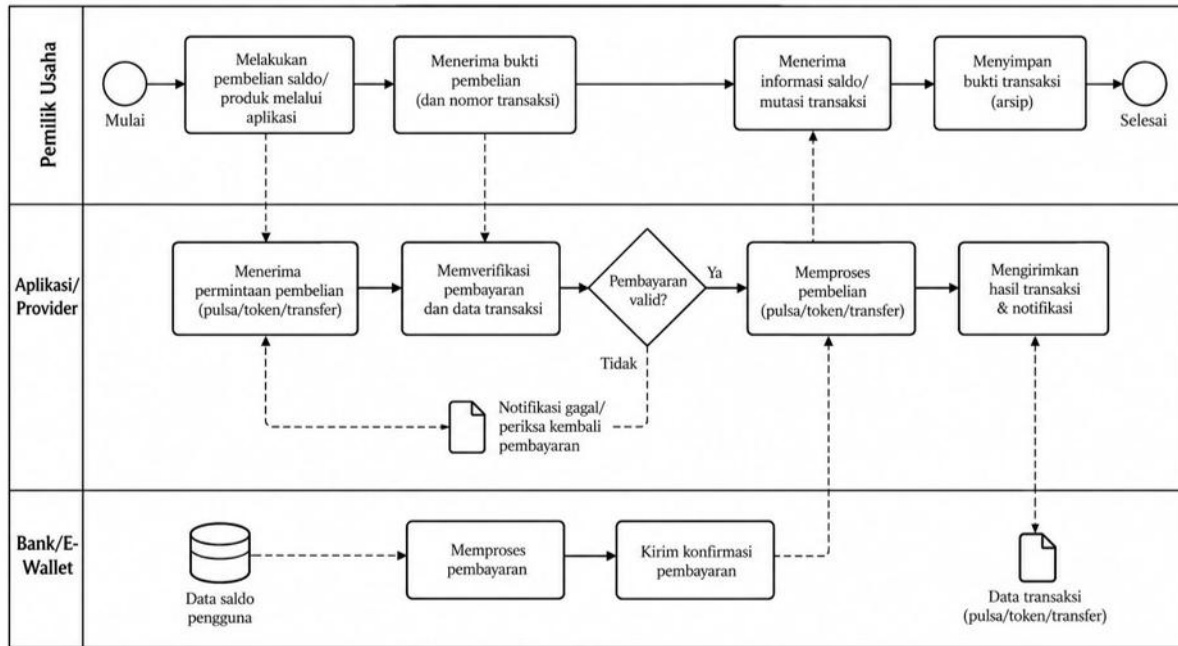


Figure 4. BPMN of the Inventory Purchasing Cycle

Source: Compiled by the authors (2026) – in Bahasa Indonesia

4.4 Sales Cycle

The interview showed that sales at Queen Cell begin when a customer wants to buy mobile credit, an electricity token, or a transfer service. The customer pays in cash or by transfer, after which the owner delivers the service ordered and gives the customer proof of the transaction obtained from the application.

“At Queen Cell, a service sale happens when the customer places an order for the service chosen and then pays, either in cash or by transfer. The transaction is processed immediately and I send the proof of transaction from the application to the customer.”
(Owner)

The owner also identified the step that carries the greatest risk in the sales cycle, namely the entry of the destination number or account number, because a transaction sent to the wrong number cannot easily be reversed.

“The most worrying part is typing the number. If one digit is wrong, the credit or the transfer goes to someone else and it is very hard to get it back, so I now read the number back to the customer before I press send.” (Owner)

Figure 5 shows the sales cycle as a whole. It begins with the sale of digital services: mobile credit, electricity tokens, and transfers. When a customer places an order and pays in cash, by transfer, or by e-wallet, the owner processes the transaction through the provider application, and if the transaction succeeds, the credit is received, the token becomes active, or the transfer is delivered to the customer. Service balances are obtained through top-ups made by the owner in the application, and once the top-up is paid, the balance increases and is ready for use. All sales transactions are recorded in the general journal and recognised as revenue, while purchase and top-up evidence is used by the owner as documentation.

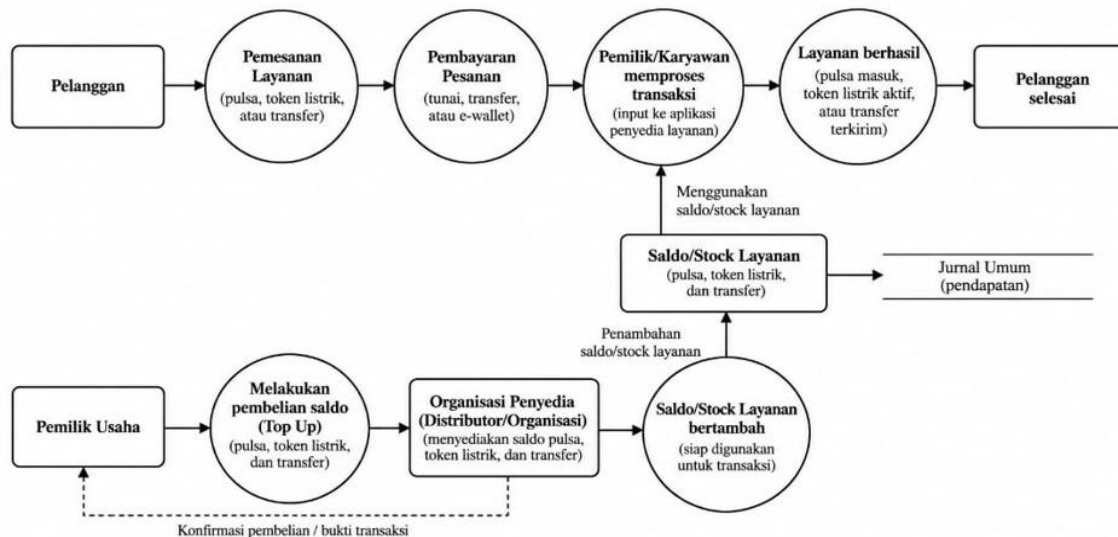


Figure 5. Sales Cycle

Source: Compiled by the authors (2026) – in Bahasa Indonesia

Figure 6 shows the BPMN model of the sales cycle, which involves three parties: the customer, the owner (counter), and the provider organisation (distributor). The process starts when the customer chooses the service category (mobile credit, electricity token, or money transfer), continues with payment in cash or by transfer, and ends when the customer receives the service. In the owner's lane, the counter receives the payment, enters the transaction in the provider application, processes the purchase or transfer, confirms that the order has been delivered, and gives the receipt to the customer. The owner's lane also includes the preparation of a daily sales report, which feeds the manual or automated recording. In the provider's lane, the distributor receives top-up requests, processes them, and adds to the service balance used to serve customers. Compared with the as-is process, the to-be model adds two controls: the destination number is confirmed with the customer before submission, and every completed sale is captured in the daily sales report so that revenue and the decrease in service balance are recorded on the same day.

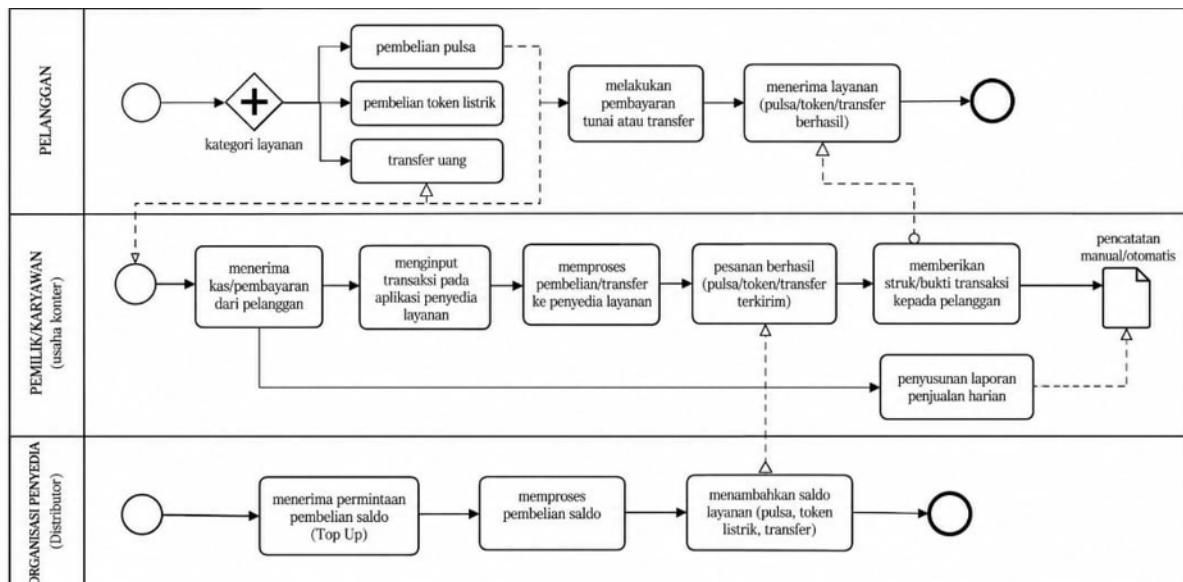


Figure 6. BPMN of the Sales Cycle

Source: Compiled by the authors (2026) – in Bahasa Indonesia

4.5 Payment Cycle

The interview also covered how payments are made and how the owner keeps track of them.

"I have never made a separate record of payments; information about payments is only seen in the transaction history." (Owner)

Beyond balance top-ups, the owner pays several operating costs from the same pool of money, which is why the separation of business cash is a prerequisite for meaningful financial statements.

"Besides buying balance, the money is also used to pay electricity, internet, and the place. Everything comes out of the same money, so at the end of the month I do not know which part was for the business and which part was for me." (Owner)

Figure 7 shows the payment cycle of Queen Cell, which provides mobile credit, electricity tokens, and transfer services. The first stage is the customer's purchase of a service and payment in cash or by transfer to the owner. The owner records each transaction as the basis for managing the business's cash flow. Cash received is then used for several needs, such as operating expenses (electricity, internet, and rent) and payments for balance purchases to the provider application. Cash receipts and business capital are recorded in the general journal as part of Queen Cell's financial records.

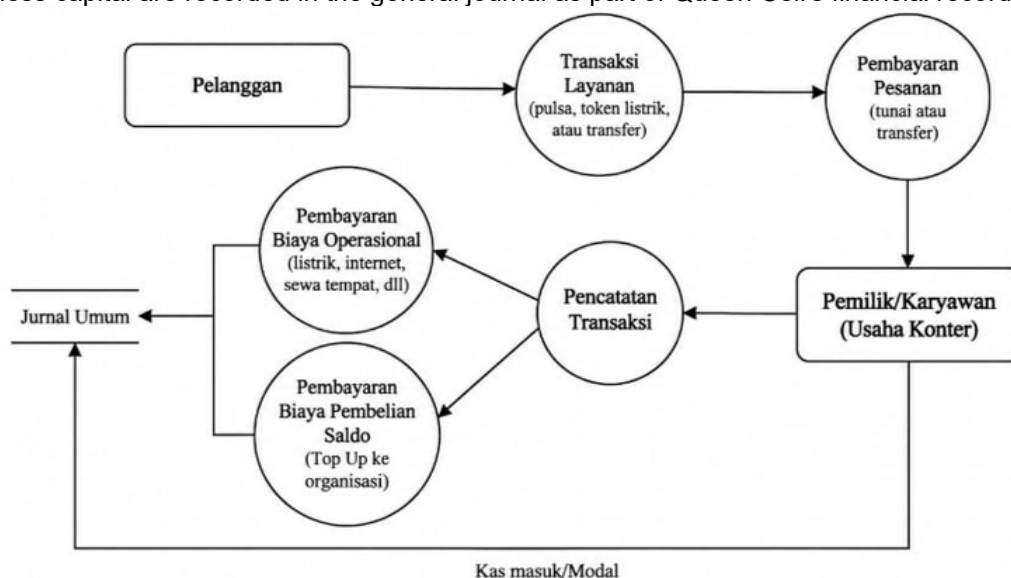


Figure 7. Payment Cycle

Source: Compiled by the authors (2026) – in Bahasa Indonesia

Figure 8 shows the BPMN model of the payment and service cycle, which involves four parties: the owner, the provider organisation (supplier or distributor), the customer, and the system. The process begins when the owner buys a balance from the provider by submitting a balance request and paying for it in parallel, as shown by the parallel gateway. The provider receives the request, processes the addition to the owner's account, and sends a notification that the balance has been added; the payment proof and the notification are kept as documents. The owner receives the notification and checks the balance in the system. In the service process, the customer chooses a service, provides the destination number, and pays. The owner processes the transaction through the system, which processes the service and sends a success status to the owner and the customer. Once the transaction is complete, the system produces a transaction receipt and a daily transaction report as documentary evidence. These two documents are the source documents for the journal entries described in the recording cycle.

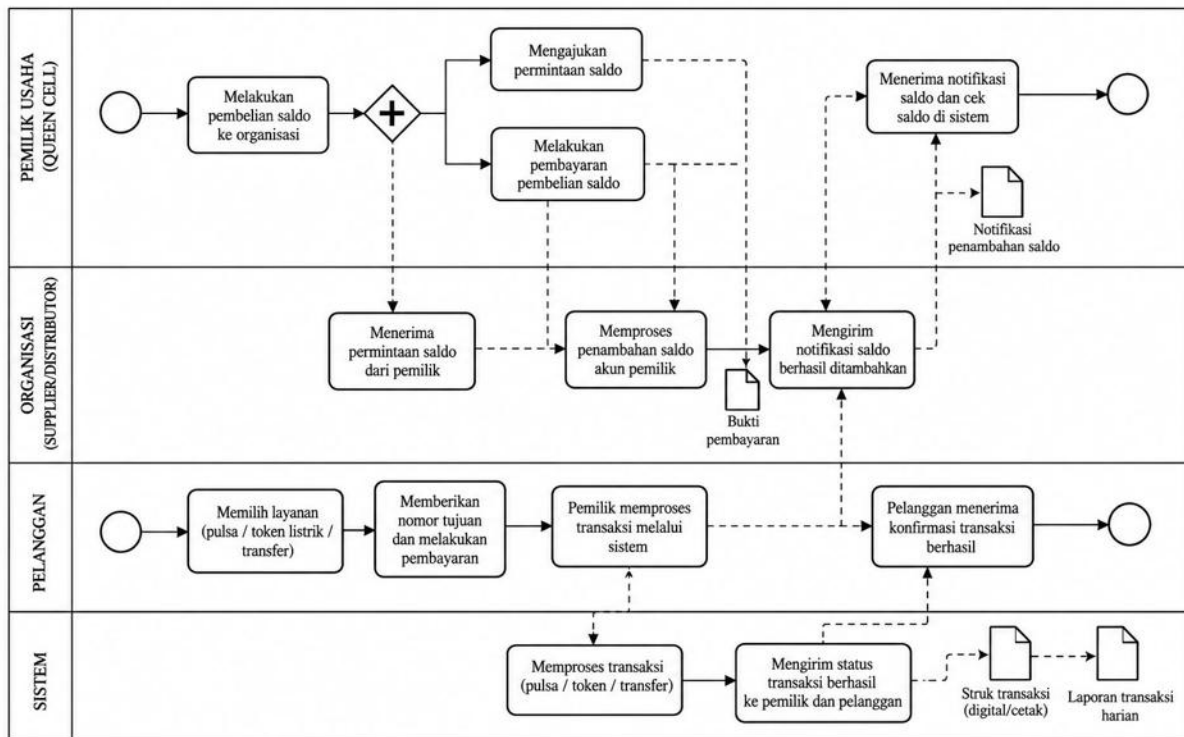


Figure 8. BPMN of the Payment Cycle

Source: Compiled by the authors (2026) – in Bahasa Indonesia

4.6 Recording Cycle

The interview showed that the owner did not record transactions at all and relied only on transaction evidence.

“So far I have relied only on the transaction evidence, so there are no records at all, and I do not know how much profit I get from this business.” (Owner)

When asked what she would need in order to start recording, the owner stressed simplicity and the use of documents she already receives, which informed the decision to base the recording cycle on the application's reports and receipts rather than on new forms.

“If I have to record, it must be simple, because I serve customers at the same time. It would help if I could use the reports from the application and the receipts I already have, and then just check them at the end of the day.” (Owner)

Figure 9 presents the recording cycle in detail, from transaction evidence to the preparation of financial statements. After the data have been collected and declared complete, transactions are recorded in the general journal and then posted to the general ledger. When necessary, the owner also records adjusting entries so that the financial information reflects actual conditions. The provider organisation supplies the recap or proof of balance purchases, which serves as a supporting document for recording, while customer transactions such as mobile credit, electricity tokens, and transfers produce receipts that are used to match the transactions that occurred with the business records.

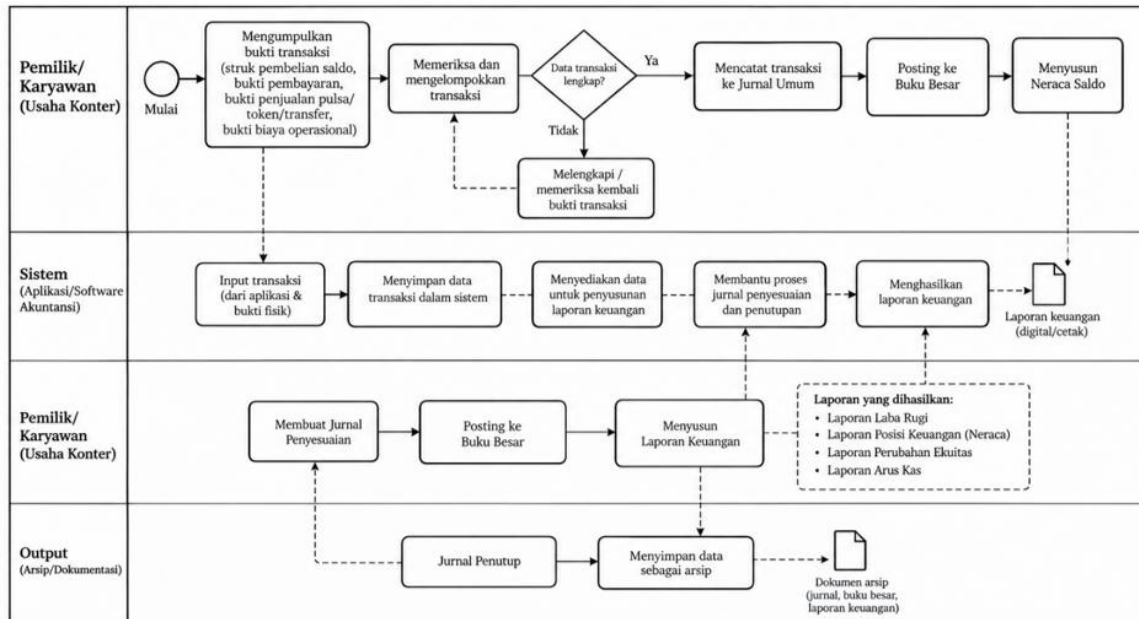


Figure 9. Recording Cycle

Source: Compiled by the authors (2026) – in Bahasa Indonesia

Figure 10 shows the BPMN model of the recording cycle, which involves four lanes: the owner, the provider organisation, the service (customer transactions), and the system (accounting). The process begins when the owner collects the documents related to balance purchases and customer transactions. The documents are checked for completeness and for consistency with the balances, and an exclusive gateway ("complete?") determines the next step: if any document or data is incomplete, the owner must check it again before recording. In the system lane, the transaction data received from the system are compared with the evidence (receipts, invoices, and reports), and a second exclusive gateway ("matched?") ensures that discrepancies are investigated and corrected before the transaction is journalised. Once all information agrees, the transactions are posted to the general ledger, ledger reports are produced per account, and the financial statements are prepared: the income statement, the cash flow statement, and the statement of financial position.

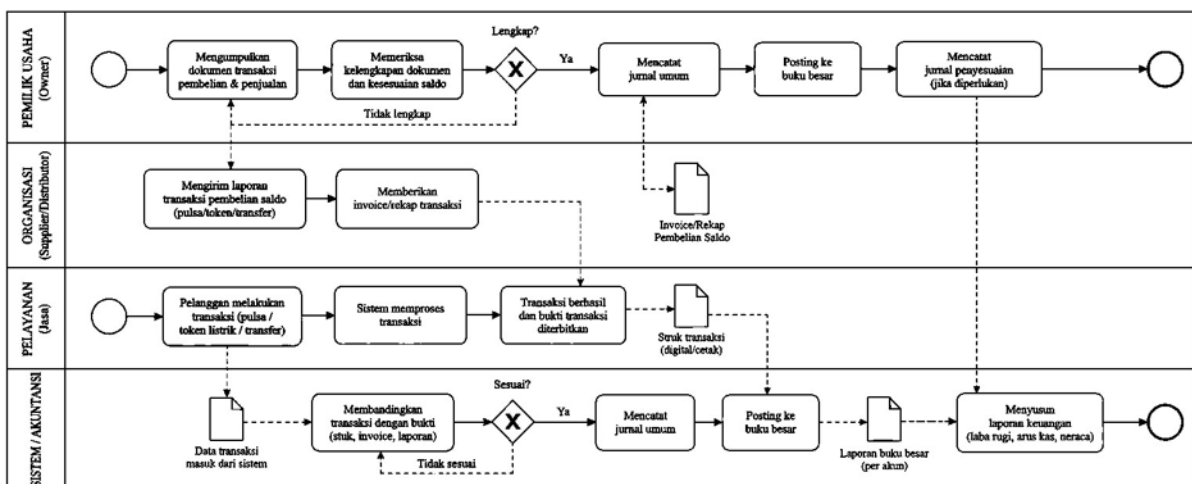


Figure 10. BPMN of the Recording Cycle

Source: Compiled by the authors (2026) – in Bahasa Indonesia

The recording cycle therefore does not stop at recording sales; it continues with checking, classifying, and preparing financial information that the owner can use to evaluate the business. Under SAK EMKM, revenue from service sales is recognised when the service is delivered to the customer, the cost of the balance consumed is matched against that revenue, and the remaining service balances are presented as current assets in the statement of financial position (Ikatan Akuntan Indonesia, 2016). The two gateways in Figure 10 are the practical expression of the control objectives discussed by Faridawati et al. (2024): they prevent incomplete or mismatched data from entering the books and thus protect the reliability of the reports.

4.7 Linking the Design with Financial Reporting and Business Sustainability

Taken together, the four cycles show that every event in Queen Cell's operations has a clear source document and a defined point of entry into the accounting records. The purchasing cycle generates top-up notifications and payment proofs, the sales cycle generates customer receipts and the daily sales report, the payment cycle generates evidence of operating payments, and the recording cycle turns these documents into journal entries, ledger balances, and financial statements. This integration responds to the main weakness found in the as-is condition, namely that the owner could not determine profit or separate business and personal funds. The result is consistent with Hambali and Rizqi (2025), who found that accounting information systems improve the accuracy of MSME reports and the speed with which information is available, and with Zaidah et al. (2025), who showed that BPMN clarifies financial processes and makes as-is and to-be comparisons possible.

The design also contributes to business sustainability in three ways. First, the separation of business cash and the daily sales report allow the owner to see how much capital is tied up in service balances and how much profit is generated, which supports decisions on capital allocation (Nuzulita et al., 2020; Lutfi et al., 2022). Second, the verification gateways reduce losses from wrong destination numbers, which are a material operational risk in digital transaction services. Third, SAK EMKM-based statements make the business more legible to external parties such as lenders, which is one of the ways in which the adoption of accounting standards supports the sustainability of MSMEs (Amanda & Rialdy, 2024). Compared with previous design studies of coffee shops and food stalls (Setiawan et al., 2025; Ardiansyah et al., 2025), the distinctive feature of the Queen Cell design is that inventory takes the form of digital balances spread across several providers and that the principal control risk lies in data entry rather than in physical stock.

"If I can see the profit every month and know how much balance I need, I can decide whether to add new services or not. That is what I want from the records." (Owner)

From the perspective of the Sustainable Development Goals, these contributions extend beyond the business itself. The design gives a woman owner the information she needs to decide on capital allocation and on adding new services, as she expressed in the interview above, which supports her economic decision-making in line with SDG target 5.5. Using the provider applications as the source of transaction data, combined with simple verification and recording procedures, illustrates how enabling technology can strengthen a woman-owned business (target 5.b). Separating business and personal money and producing SAK EMKM-based statements are steps towards formalisation (target 8.3), while reliable service to neighbours who depend on Queen Cell for token purchases and transfers supports wider access to financial services in the community (target 8.10) (United Nations, 2015). These contributions remain potential until the design has been implemented and used over a longer period.

5. CONCLUSION

This study evaluated the business process and transaction management of the Queen Cell MSME, which provides digital services such as mobile credit, electricity tokens, e-wallet top-ups, game top-ups, and money transfers. The as-is evaluation showed that the owner did not apply any systematic financial recording and relied on the transaction history provided by partner applications. In response, the study formulated a proposed to-be workflow through the design of an accounting information system mapped with a Data Flow Diagram (DFD) and Business Process Model and Notation (BPMN). The modelling

covers four main cycles: inventory (balance) purchasing, sales, payment, and transaction recording. The decision gateways used to validate customer data and supporting documents in the BPMN are critical components for reducing errors in entering destination numbers. In addition, an accounting framework aligned with SAK EMKM makes it easier for the owner to convert daily operations into general journal and ledger entries and thus to produce accurate financial statements that support the sustainability of the business. By strengthening a woman-owned micro-enterprise that serves the digital transaction needs of its neighbourhood, the design also contributes to SDG 5 (gender equality) and SDG 8 (decent work and economic growth).

5.1 Implications

The findings make meaningful contributions both to practice and to the development of knowledge.

Practical implications. For the owner of Queen Cell, the proposed system can serve as an operational guide that bridges daily transactions and orderly bookkeeping. It makes it easier to separate personal and business funds, to monitor cash flows accurately, and to prepare financial statements regularly for performance evaluation and capital allocation. The inclusion of data verification steps can also prevent material losses caused by errors in processing transactions.

Theoretical implications. Academically, the study enriches the literature on the integrated use of BPMN, DFD, and SAK EMKM in digital-service micro-enterprises. It addresses the limitation of previous research, which has tended to focus on conventional businesses such as coffee shops, food stalls, or BUMDes, and shows that process modelling and SAK EMKM are adaptable to digital business models that emphasise speed and a high frequency of transactions.

5.2 Limitations and Recommendations for Future Research

Despite these contributions, the study has several limitations.

1. Scope of the subject. The study used a single-case design at Queen Cell, so the findings and the design cannot automatically be generalised to all MSMEs in the digital transaction services sector.
2. Scope of the design. The study covered system conception, data flow mapping (DFD), and workflow modelling (BPMN). It did not include full software programming or technical implementation using a Microsoft Excel automation template.
3. Accuracy of primary data. The quality and completeness of the information depend on the informant's memory and on the availability of transaction documents.

Recommendations for future research. Future studies are encouraged to implement this blueprint as a ready-to-use application or a spreadsheet-based accounting template (such as Microsoft Excel), and to test its effectiveness and long-term use across a wider range of MSMEs.

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Abbreviations

AIS: Accounting Information System

BPMN: Business Process Model and Notation

BUMDes: Badan Usaha Milik Desa (village-owned enterprise)

COA: Chart of Accounts

DFD: Data Flow Diagram

MSME: Micro, Small, and Medium Enterprise

SAK EMKM: Standar Akuntansi Keuangan Entitas Mikro, Kecil, dan Menengah (Financial Accounting Standards for Micro, Small, and Medium Entities)

Authors' Contributions

MFM contributed to the research idea, wrote the introduction, and designed the initial research framework. FNR compiled the literature review and assisted with qualitative data processing. PMH provided access to the business, the operational observations, and business documents as the owner of Queen Cell. ANF formulated the research method and helped map the data flow diagrams (DFD). NAF designed and formulated the BPMN business process models. EAS developed the SAK EMKM-based financial recording scheme and refined the final draft of the manuscript.

Conflict of Interest

The authors declare no financial or non-financial competing interests that could influence the objectivity of this research. One author (PMH) is the owner of the business studied; to manage this relationship, the interview and analysis were conducted by the other authors and her statements were verified against transaction documents.

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Availability of Data and Materials

All supporting files and data, including the interview transcript, field observation notes, and the DFD and BPMN models, are documented and available from the corresponding author upon reasonable request.

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