ISSN (e): 2250 – 3005 || Volume, 10 || Issue, 7|| July – 2020 ||
International Journal of Computational Engineering Research (IJCER)

Analyze and model sales of consumable applications using business process improvements at PT. AmcoMultitech

Lila Setiyani[1], Karya Suhada[2], YenniKristianti [3] April Lia Hananto[4], Bayu Priyatna[4]

[1,3]*Information System STMIK Rosma*
[2]*Technical Information STMIK Rosma*
[4]*Information System UniversitasBuanaPerjuanganKarawang*

ABSTRACT

PT. Amco MultiTech is a company engaged in the field of general trading and suppliers. The business process that runs on the company today still uses old methods such as the sales process, which in its management still relies on media interaction with consumers (customers) directly and always centred on a particular location. Therefore this research aims to analyze business processes to determine the functional and non-functional requirements of the system, which will then modelled using the Unified Modeling Language (UML). In this study, using the Business Process Improvement (BPI) approach to help improve the effectiveness and efficiency of business processes. The results of this study are an application model of the application of sales of consumables that is more effective and efficient.

KEYWORDS:*Business Process, Improvement, (BPI), Unified Modeling Language (UML).*

Date of Submission: 31-10-2020 Date of acceptance: 12-11-2020

I. INTRODUCTION

PT. AmcoMultitech is a company engaged in general trading and suppliers. PT. AmcoMultiTech is a company founded in July 2008, located in the city of Karawang. PT. AmcoMultitech sells tools in the form of webbing slings, wire rope slings, safety gloves, masks, cutting tools, abrasives and power tools, precision and laboratory equipment, and safety shoes. PT. AmcoMultitech has collaborated with many manufacturing companies in the city of Karawang and outside the town of Karawang. The business processes that are carried out in companies today still use old methods such as the sales process, which in its management still relies on direct interaction media with consumers (customers) and is always focused on specific locations. Of course, it makes it difficult for the government to expand its market share. Consumers (customers) often find it difficult to access various information about products, the latest price information, promotional media are limited and tend to be inflexible, personalization barriers, and increasing operational costs.

To analyze and improve the business processes that run in a company, it requires a way or approach to help and support it. The author will use the Business Process Improvement (BPI) approach or method. The first thing the author will do is use BPMN to model current business processes. Business Process Model and Notation (BPMN) is a tool for describing or modelling business process diagrams based on flowchart techniques, strung together to create graphical models of business operations. Where there are activities and flow controls that define work sequences, they are also encouraging researchers to provide solutions to the problems revealed by increasing the effectiveness and efficiency of existing business processes using the BPI approach. To provide a broad overview of the proposed new business processes, researchers are also interested in the functional and modelling requirements of the Sale of Consumables application from PT. AmcoMultiTech.

II. RITERATURE REVIEW

2.1 Business process improvement

Is one of the ways that can be used by organizations or companies in making significant progress in the implementation of its business processes [1]. BPI is also a systematic method developed to help an organization make a significant improvement through the way its business processes operate [2]. With the BPI method, a systematic framework can be drawn up that can help an organization to make significant progress in the implementation of its business processes [3]. BPI is a systematic method developed to assist

an organization in making significant progress in operating its business processes. The problems that become reasons for improving business processes are as follows [4].

1. External customer problems and / or complaints.
2. Internal customer problems and / or complaints.
3. Processes that result in high costs.
4. Long cycle times.
5. There are alternative ways that are more effective.
6. New technologies available.
7. Management directions in applying a previously non-existent methodology.

2.2 Business Process

Process Management Concepts, Languages, Architecture In 2012, a business process is a collection of activities carried out in a coordinated manner in an organizational environment and a technical environment. These activities together achieve business goals. Each business process is defined by one organization (part), but can interact with processes run by other organizations (parts) [5]. Business processes can be divided into two, namely the main process and the supporting process. The main process, namely the process of generating value for the company. Those who directly deal with the company and receive supplies from suppliers for customer activities and support processes, is not a process that directly produces value, but a process that supports the main process [6].

2.3 Design

Design or design is defined as the process of applying various techniques and principles for the purpose of defining a device, process or system in sufficient detail to allow its physical realization [7],[17].

2.4 System

The system is a network of procedures that are interconnected, gathered together to carry out an activity or to complete a particular goal [8]. A system is a group of elements that are integrated with the common purpose of achieving an objective [9]. The system is a network of interrelated procedures, gathered together to carry out an activity or for a particular purpose [10], [11],[16].

III. METHODE

Research leads to the Design Science paradigm, which is rooted in the domain of artificial science techniques. This type of research is qualitative research using the interview method. This type of research is qualitative research using the interview method. Interview questions used to explore related business processes, actors and documents involved in the business process studied [12]. In defining a running business process, it will produce a business process recommendation, which in this case, the researcher uses a business process improvement approach. Meanwhile, the modelling process has an application model of the sale of consumables that is more effective and efficient [13], [14], [15].

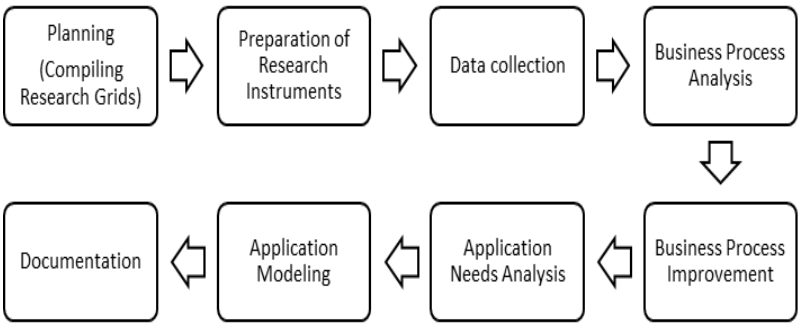

Figure 1: Research Procedure

IV. THE FINDINGS AND DISCUSSION

4.1 Research Data Analysis

1. Organizing For Improvement

The following is a list of business processes contained in the company PT. AmcoMultitech:

Table I: List of Business Processes

No	Process Group	Process Name	Process Owner
1	Bidding Process	Bidding	Marketing and Customers
		Submission a Cooperation	Marketing and Customers
2	Sales Process	Regular Visits	Marketing
		Accept Purchasing Orders	Marketing
		Make a Sales Order	Marketing
3	Checking Process	Check The Sales Order	Purchasing
		To do Stock Availability	Purchasing, warehouse and delivery
4	Purchasing Process	Looking for Availability of Goods at Suppliers	Purchasing
		Make a Purchase Transaction	Purchasing and Supplier
5	Support and Delivery Process	The Making a Road Letter	Marketing Support
		Acceptance a Road Letter	Warehouse and delivery
		Stuff Packing	Warehouse and delivery
		Stuff Delivery	Warehouse and delivery
		Stuff Delivery and Signature	Warehouse and delivery
		Receive a Pass That Has Received	Warehouse and delivery
		Cuts Stock	Warehouse and delivery
6	Payment Processing/Billing	Making Invoice	Accounting
		Tax Invoice Creation	Accounting
		Manufacture Receipts	Accounting
		Billing	Accounting

2. Understanding the Process

Descriptions for the business process of selling consumables that run at PT. AmcoMultitech with Business Process Management and Notation (BPMN) as follows :

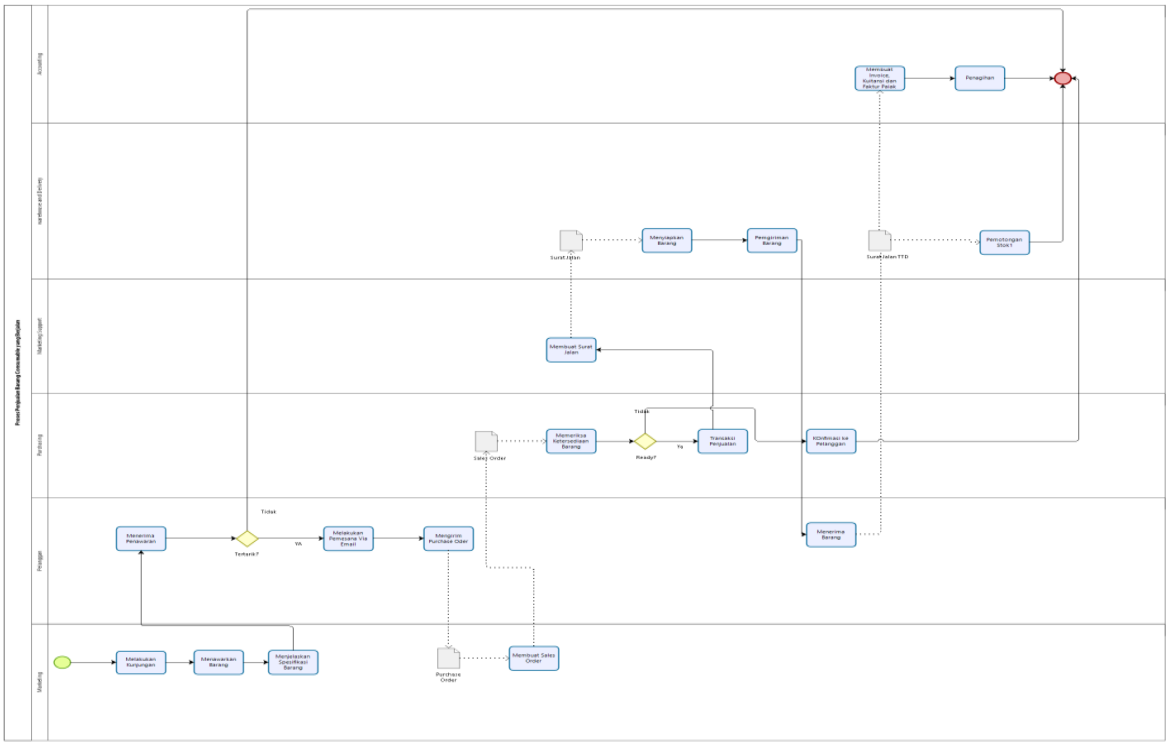

Figure2: The running consumables business process

3. Streamlining

1) Problems In Business Processes

At this stage, somebody will explain issues that exist in the business process of selling consumables.

a) Offering and Selling Consumable Goods

In the process of capturing and selling consumable goods, which in its management still relies on direct interaction media with consumers (customers) and iso always centred on specific locations, it requires time and high operational costs.

b) Limited information

Consumers (customers) often find it difficult to access various information about products, the latest price information. Promotional media are little and tend to be inflexible, personalization barriers, and increasing operating costs, making it increasingly difficult for companies to maintain performance and performance.

4. Business Process Improvement Design

From the activity analysis, found it 5 Real-Value Added (RVA) activities, 1 Business-Value Added (BVA) activity in the process of selling consumable goods. It can say that there are two activities in the business process of selling consumables that can streamline. The streamlining technique used to provide business process recommendations is upgrading, especially in the bidding and sales process.

Tabel2: Business Process Improvement Design

No	Business Process Problems	Streamlining Type	Business Process Recommendation
1	In the process of offering and selling consumable goods, which in its management still relies on direct interaction media with consumers (customers) and always centred on specific locations, it requires time and high operational costs.	Automation	It is using a system that provides direct or indirect interaction via electronic media to reduce existing operating expenses.
2	Consumers (customers) often find it difficult to access various information about products. About latest price information product, limited and inflexible promotional media, personalization barriers, and increasing operating costs. They are making it increasingly difficult for companies to maintain performance and performance with profitability levels.	Upgrading	With the new system, consumers (customers) can access the services provided, especially in information on a product.

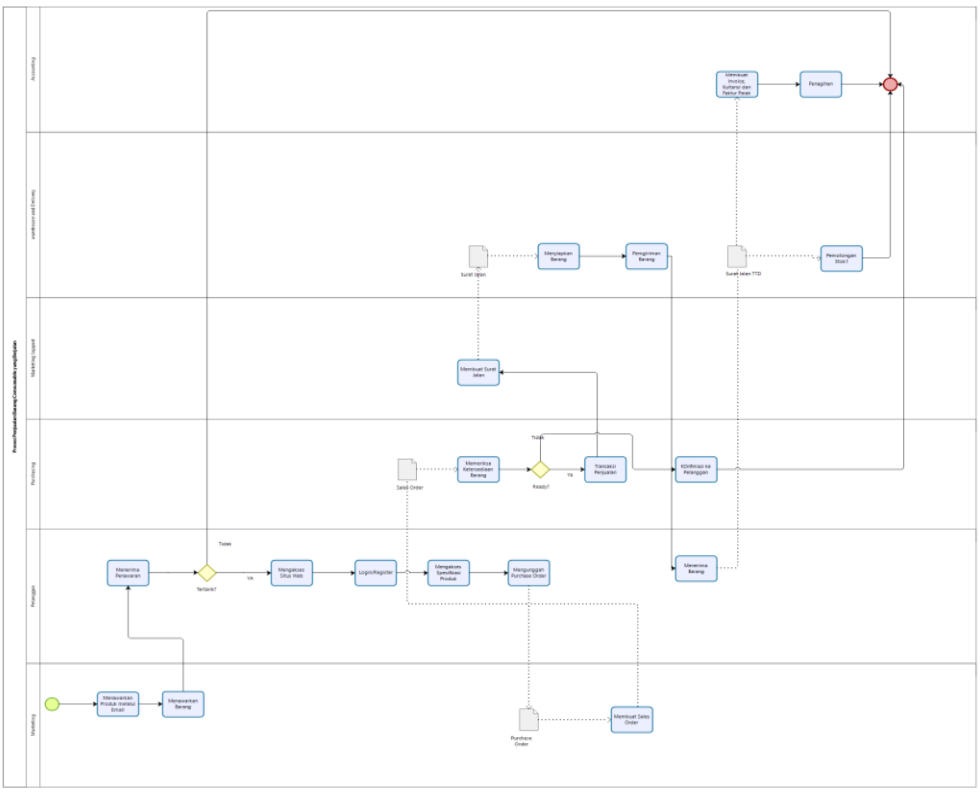

Figure 3: The business process of selling consumables recommendations

5. Functional And Non-functional Analysis

1) Functional Analysis

Functional analysis is an analysis that provides an overview of the operational requirements of currently ongoing procedures. The following is an analysis of the operational needs of the proposed system based on the system running at PT. AmcoMultitech, as follows:

Table 3: Functional Analysis

No	Users	Description
1	Customer	The proposed system must have a new guest data input display so it must have a Login menu. The system can provide a medium for interaction between customers and marketing so that in this module, the system must-have features of the customer data menu, quotation menu and Sales Order (SO). The proposed method can show the specifications of goods and display the number of stock items available so that the system must have an item menu feature. The system can make purchase transactions, can show a summary of purchases and upload a Purchase Order (PO). So it must have a Sales menu.
2	Marketing	The proposed system must have a user, marketing data input display so that the system must have a Login menu. The system can provide a collection of input items so the system must have an item menu. The system can perform sales transactions in the form of offering goods, creating Sales Orders (SO), downloading Purchase Orders (PO) and displaying sales data so that it requires a sales menu.

2) Non-functional Analysis

The following is an analysis of the non-functional requirements of the running system :

Table 4: Non-functional Analysis

No	Type Of Analysis	Description
1	Operational	In the analysis from the operational side, PT. AmcoMultitech requires a computer that is capable of supporting work more effectively and efficiently. The intended computer is a computer that meets the system specifications proposed by the author, namely the Windows operating system, an Intel Core i3-8100 processor with a base frequency of 3.60 GHz processor.
2	Security	the result analysis from the safety (protection) of PT. AmcoMultitech requires a login system with a password.
3	Information	in the research from the information side of PT. AmcoMultitech requires a system that can provide information in out of stock and login if used by the wrong user.
4	Performance	in the analysis from the performance side of PT. AmcoMultitech requires a system that can carry out sales transactions of consumables effectively and efficiently.

6. Application Or System Modeling

1) Use Case

The use case diagram model is determined based on the functional requirements to build. Based on the assumptions used, the Sales Consumables application use case diagram can describe as follows :

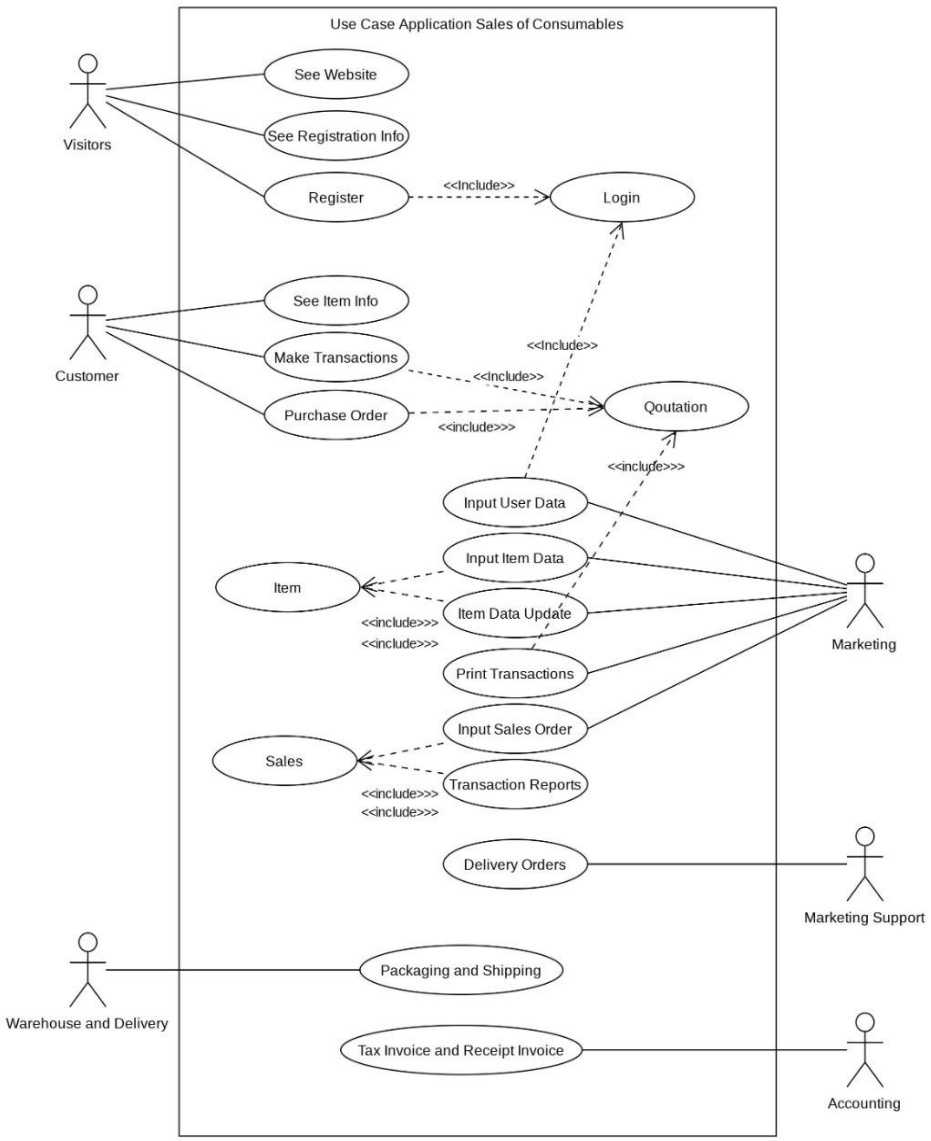

Figure4: Use Case Application Or System Modeling

This section describes the actors involved in the sales system for consumables at PT. AmcoMultitech. Definition of actors in the use case diagram can see it in the following table :

Table 5: Use Case Description

No	Actor	Role
1	Visitors	As a website visitor but cannot log into the system.
2	Customer	as a website user who orders consumables and has registered in the system.
3	Marketing	as an administrator who manages the network.
4	Marketing Support	as the creator of the letter.
5	Warehouse and Delivery	as a shipper of consumables
6	Accounting	as an invoice and billing maker

2) Activity Diagram

Activity diagrams describe the sequence of workflow in the system running in detail from each process in the previous use case diagram. Activity diagrams illustrate the sequence of workflow in the system running in fact from each cycle during the last use case diagram.

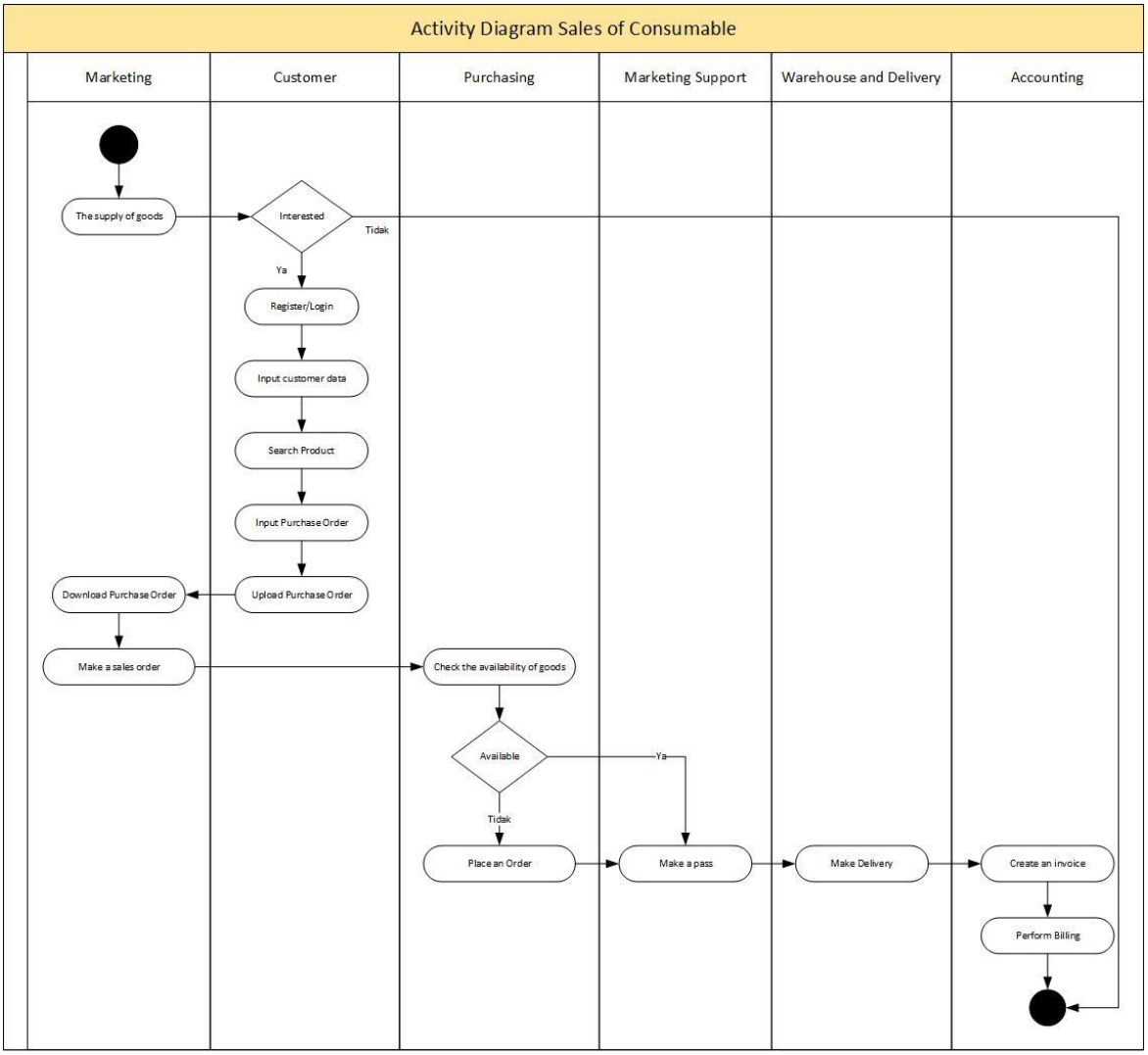

Figure 5: Activity Diagram Application or System Modeling

The picture above shows that five actors play a direct role in the process of selling consumable goods, namely Marketing, Customers, Purchasing, Warehouse and Delivery and Accounting. The activities that occur in this process are the activities of offering products from Marketing to customers via Email. If interested, the customer will visit the available website. Then the customer will register beforehand to log in. After logging in, the customer will input customer data, then search for products according to existing needs. The next activity is to input the Purchase Order (PO) data and upload it. Then the Marketing will download the Purchase Order (PO) to create a Sales Order (SO). Then the Purchasing party will check the availability of the item in the warehouse. If not available, orders will be made first and then sent. If available, Marketing Support will make a delivery letter and will send the order immediately through Warehouse and Delivery. After delivery, will generate an invoice from the Accounting for billing.

V. CONCLUSION

The following are theconclusionsoftheresearcher'sresearch, as follows :

1. Based on the results of processing and analysis, can conclude that the cause of the sale of consumable goods that is less effective and efficient is that the current sales system still uses the old. Methods, which requires direct interaction between marketing and customers, so it requires time and operational costs.
2. There are six actors in this business process, namely customers, marketing, purchasing, marketing support, warehouse and delivery and accounting. And there are six processes in the sale of consumable goods, namely the process of bidding, selling, checking, purchasing, supporting and shipping as well as billing/payment.

From the activity analysis, the word found 5 Real-Value Added (RVA) activities, 1 Business-Value Added (BVA) activity in the process of selling consumables. It can mean that there are two activities in the business process of selling consumables that can to be streamlined. The streamlining technique used to provide business process recommendations is upgrading, especially in the bidding and sales process.

REFERENCES

[1] T. Susanto, D. Pramono, and N. Y. Setiawan, "Analisis Dan Perbaikan Proses Bisnis Menggunakan Metode Business Process Improvement (BPI) (Studi Kasus : PT . Wonojati Wijoyo)," J. Pengemb. Teknol. Inf. dan Ilmu Komput., vol. 2, no. 12, pp. 6201–6209, 2018.

[2] N. Rizqi, U. Hidayati, T. A. Ramadhan, and M. A. Yaqin, "Simulasi Proses Bisnis Pondok Pesantren Menggunakan Anylogic Berdasarkan Metode Business Process Improvement (BPI)," vol. 5, pp. 138–146.

[3] P. . Mahendrawathi ER, Business Process Management, 1st ed. Yogyakarta: C.V ANDI OFFSET, 2018.

[4] Rissa Affulaila Nurfitria dan Rizki Yudhi Dewantara, "Analisis Proses Bisnis Sistem Informasi Administrasi Skripsi Dengan Pendekatan Business Process Improvement (Studi Kasus pada Program Studi Ilmu Administrasi Bisnis Fakultas Ilmu Administrasi Universitas Brawijaya)," J. Adm. Bisnis, vol. 64, no. 1, pp. 84–91, 2018.

[5] M. Fabby, "Business Process Improvement," Chang. or Die - Bus. Process Improv. Man., pp. 57–64, 2012.

[6] N. Y. S. Indra Fahrizal1, Ismiarta Aknuranda2, "Analisis Dan Perbaikan Proses Bisnis Menggunakan Metode Business Process Improvement (BPI) (Studi Kasus : PT . Wonojati Wijoyo)," J. Pengemb. Teknol. Inf. dan Ilmu Komput., vol. 2, no. 12, pp. 6201–6209, 2018.

[7] A. T. Helmi, I. Aknuranda, and M. C. Saputra, "Analisis Dan Pemodelan Proses Bisnis Menggunakan Business Process Improvement (BPI) Pada Lembaga Bimbingan Belajar (Studi Kasus : Lembaga Bimbingan Belajar Prisma)," J. Pengemb. Teknol. Inf. dan Ilmu Komput. Univ. Brawijaya, vol. 2, no. 10, 2018.

[8] Bayu Priyatna, "Penerapan Metode User Centered Design (Ucd) Pada Sistem Pemesanan Menu Kuliner Nusantara Berbasis Mobile Android," Account. Inf. Syst. Penerapan, Pp. 17–30, 2018.

[9] D. Rahmawati, R. I. Rokhmawati, and A. R. Perdanakusuma, "Analisis dan Pemodelan Proses Bisnis Bidang Pelayanan Perizinan Menggunakan Bussiness Process Model and Notation (BPMN) Studi Pada Dinas Penanaman Modal dan Pelayanan Terpadu Satu Pintu Pemerintah Kota Malang," J. Pengemb. Teknol. Inf. dan Ilmu Komput., vol. 1, no. 11, pp. 1337–1347, 2017.

[10] G. Krisantoso, I. Ap, M. Fajar, and S. Kharisma Makassar, "Penerapan Business Process Modeling Notation (Bpmn) Untuk Memodelkan Kebutuhan Sistem Proses Penyuntingan Tulisan Pada Website Jurnal Jtriste," Semin. Nas. Forum Dosen Indones., no. August 2015, pp. 2460–5271, 2015.

[11] Hananto, A. L., Priyatna, B., & Rahman, A. Y. (2019). Penerapan Algoritma Djikstra Pada Sistem Monitoring Petugas Lapangan Pemkab Bekasi Berbasis Android. JOINTECS (Journal of Information Technology and Computer Science), 4(3), 95-102.

[12] Hananto, A. L., Priyatna, B., & Haris, A. (2020). Application of Prototype Method on Student Monitoring System Based on WEB. Buana Information Technology and Computer Sciences (BIT and CS), 1(1), 1-4.

[13] B. Trafik Y, "Sistem Informasi Penjualan Biji Kopi Berbasis Website (Studi Kasus : Selanala Coffee)," Sist. Inf. Penjualan Biji Kopi Berbas. Website (Stud. Kasus Selanala Coffee), 2018.

[14] S. Dharwiyanti and R. S. Wahono, "Pengantar Unified Modeling Language (UML)," IlmuKomputer.com, pp. 1–13, 2003.

[15] K. Nugroho, "Kinerja Pegawai Dengan Matching Profile Pada," 2018.

[16] D. S. Budi, T. A. Y. Siswa, and H. Abijono, "Analisis Pemilihan Penerapan Proyek Metodologi Pengembangan Rekayasa Perangkat Lunak," Teknika, vol. 5, no. 1, pp. 24–31, 2017.

[17] B. P. Baenil Huda, "Penggunaan Aplikasi Content Manajement System (Cms) Untuk Pengembangan Bisnis Berbasis E-Commerce," Systematics, Vol. 1, No. 2, Pp. 81–88, 2013.

Lila Setiyani, et. al."Analyze and model sales of consumable applications using business process improvements at PT. AmcoMultitech." *International Journal of Computational Engineering Research (IJCER*), vol. 10, no.7, 2020, pp 47-54.