



Evaluation of business process in convection production companies using business process improvement (BPI)

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Article Info

Article history:

Received Feb 9, 2022

Revised Feb 20, 2022

Accepted Mar 20, 2022

Keywords:

Business process improvement,
Five whys analysis,
Convention company

ABSTRACT

This research aims to choose the best business process model for a convection company during the COVID-19 pandemic. This study applies an analytical framework of business process improvement (BPI), including five whys analysis (organizing for improvement, understanding the process, streamlining, measurement and controls, continuous improvement). Model business process modeling and notation (BPMN). The results of this study are an analysis of business processes that occur in convection companies, and the results are that the business processes in convection companies are still less effective. In addition, the author also provides recommendations, namely the use of a database on the ordering system used evaluation of business processes in convection production companies using BPI and BPMN.

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1. INTRODUCTION

It is necessary to bring together people to accomplish a specific goal. Using specific business processes and strategies, the process of achieving the company's goals can be accomplished. All activities that cover the business and technical sectors of the business are part of the business process. The goal of the entire set of activities is to carry out the company's strategy [1].

Since the outbreak of COVID-19, all business transactions, both domestic and international, have been hampered. The COVID-19 pandemic, which has been present since the end of 2019, is a global issue that affects all countries worldwide. The industrial and economic sectors are among those that have been hit the hardest. Due to COVID-19 and social distancing policies, all transactions that can be carried out directly and manually are prohibited.

The very significant decline in sales turnover experienced by many MSMEs was due to the COVID-19 pandemic [2]. Micro, Small, and Medium Enterprises (MSMEs) have a strategic role in economic development at the national level. One of the MSMEs affected is the convection business [3]. According to research [4], the first challenge is no certainty when the pandemic will end. This causes small business actors in the convection sector to be more vulnerable socially and economically. The second is the complexity of the convection distribution production chain. Third, there is no comprehensive mapping carried out by the government regarding the impact of the pandemic on the small and informal economy. According to [5], MSMEs are a sector that has been heavily affected by the pandemic but also have a major turning point in this pandemic.

Through this research, the author will carry out a business reengineering process by developing a strategy using Marketing Requests as a method of procurement of goods in an industry by implementing an information system in business processes with the hope that this procurement strategy is appropriate for use in conditions, including the COVID-19 pandemic [6]. During the pandemic, digitization is a massive move [7] to optimize business processes towards digital processes to improve efficiency and better data integrity.

Along with running a business in an organization, business goals are not necessarily achieved in one year. So, it is necessary to evaluate and reengineer business processes in a business process. Moreover, business processes need to follow current trends [8]. Evaluation is needed to get the most effective business process, and there are no obstacles in some of its activities [9]. This is the background for our analysis using business process improvement (BPI). One of the changes is to encourage or motivate business people and their businesses to improve [9].

Business process improvement (BPI) is used to help managers improve their business processes. BPI is a systematic framework that an organization can use to drive the implementation of business processes. Using the business process improvement (BPI) method is to find solutions to existing business process problems. The result of implementing BPI is the recommendation of a new business process. By modifying processes such as minimizing business process delays, increasing asset utilization, reducing existing human resources, and high costs [10].

When it comes to improving business processes, process modeling is needed so that all stakeholders have an overview of the current business processes. Then an assessment is carried out to uncover remaining problems in the business processes and analyze which processes to improve. Modeling can be done by changing fundamentally or by integrating existing systems. Appropriate methods are needed for improvement [8]. The Business Process Improvement approach is one method that can be used [11].

2. METHOD

The research methodology describes the stages carried out in a study. The initial stage begins with finding the theoretical basis for the problems and methods used, then entering the data collection stage for the selected company, after that the process of identifying existing business processes in the company, followed by modeling business processes, if the modeling has been completed, then go to the next stage. Business process evaluation, modeling intends to obtain business process recommendations for problems. The final stage is drawing conclusions from the entire series of processes observed. The research method can be seen in Figure 1.

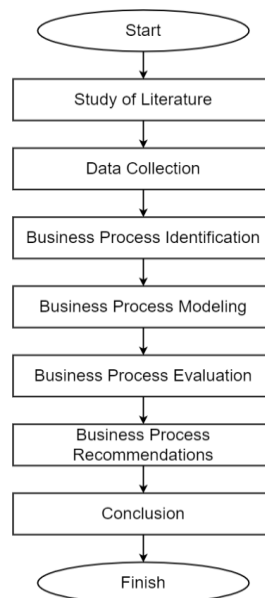


Figure 1. The research method

Many studies apply business process improvement (BPI), such as research [11] regarding BPI analysis at tutoring institutions, research [12] regarding business process analysis at Galuh Bookstore, research [13], namely BPI analysis at PT. Winojaya Sejati, research [14] on the BPI framework method for tourism product development, [9] on the application of BPI at the harbor and port authorities, [15] researching the BPI analysis of UB guest houses.

The methodology is needed to explain the steps that must be carried out in conducting research. First, it begins by conducting a literature study that becomes the research material. Furthermore, data collection is carried out by conducting interviews and observations with the intended party. The next stage identifies business processes as the basis for modeling business processes for the intended party. Then it is necessary to evaluate business processes as an assessment of the business processes used. Then provide a business process evaluation for the problems being faced. The last stage is concluding the research.

3. RESULTS AND DISCUSSIONS

In BPI (Business Process Improvement), there are five stages, including:

1. Organizing for Improvement
This stage aims to ensure success which is carried out by making a contract. This stage also intends to select the process to be improved.
2. Understanding the Process
This stage is an understanding of all business processes currently being implemented, usually done by identifying business processes, then making business process models, and analyzing the time of existing business process activities.
3. Streamlining
At this stage, business processes are simplified to improve the effectiveness, efficiency, and adaptability of business processes. This stage implements the 12 tools available at BPI, namely: Bureaucracy Elimination, Duplicate Elimination, Value-added Assessment, Simplification, Process Cycle-time Reduction, Error Proofing, Upgrading, Simple Language, Standardization, Supplier Partnerships, Big Pictures Improvement, Automation, and Mechanization
4. Measurements and Controls
This stage is applied to determine the effectiveness of business processes that have been improved. This phase also aims to measure business processes regularly for subsequent improvements.
5. Continuous Improvement
This stage aims as a periodic application of business processes that have been improved. This stage also evaluates and redefines business processes that have previously been improved to find new problems, which are then re-evaluated in the following business process.

3.1. Business Process Analysis and Modeling

To analyze and model a business process, it is necessary to identify the supporting business processes in a manufacturing company. The method of determining the main activities in a company is based on value chain analysis. Figure 2 depicts the value chain in a manufacturing company.

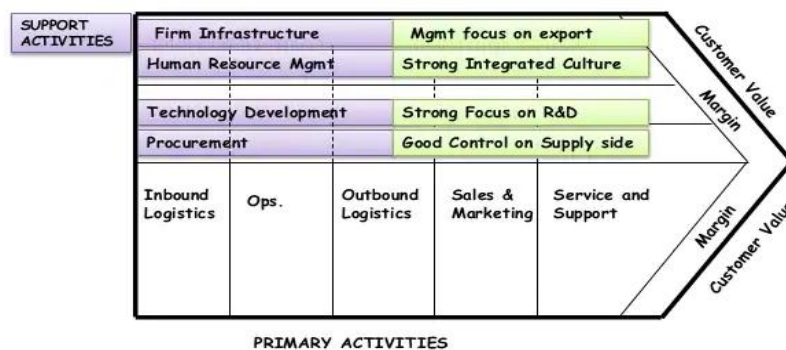


Figure 2. The value chain in a production company

The next step is to determine the decomposition of the company's value chain you want to analyze. The following is a breakdown of the production company.

1. Production
The main activity is carried out in production.
2. Marketing and sales
Activities carried out in marketing and sales are closed.
3. Finance
Part of recording money in and out of the company.

The next step after value chain analysis and decomposition is business process modeling.

3.2. Description of Convection Production Business Process

Table 1 shows the description of the convection production business process.

Table 1. Convection production business process	
Convection Production	
Actor	Accounting, Production, Marketing and Consumer
Description	This is a business process in which marketing promotes products to consumers, then consumers place orders, which are accepted by marketing and forwarded to the production department, which determines whether to produce the product; if so, the order is processed, and a report is generated; if not, the order is recorded. If a consumer order is received, it will be forwarded to the accounting department, which will create an order invoice, which will then be used as a payment note for the product ordered.
Purpose	Make it easier for customers to order products and business owners to manage their businesses.
Input	Buyers' products are ordered.
Output	Sales reports and purchase invoices

The business processes obtained after the analysis are as follows, in Figure 3.

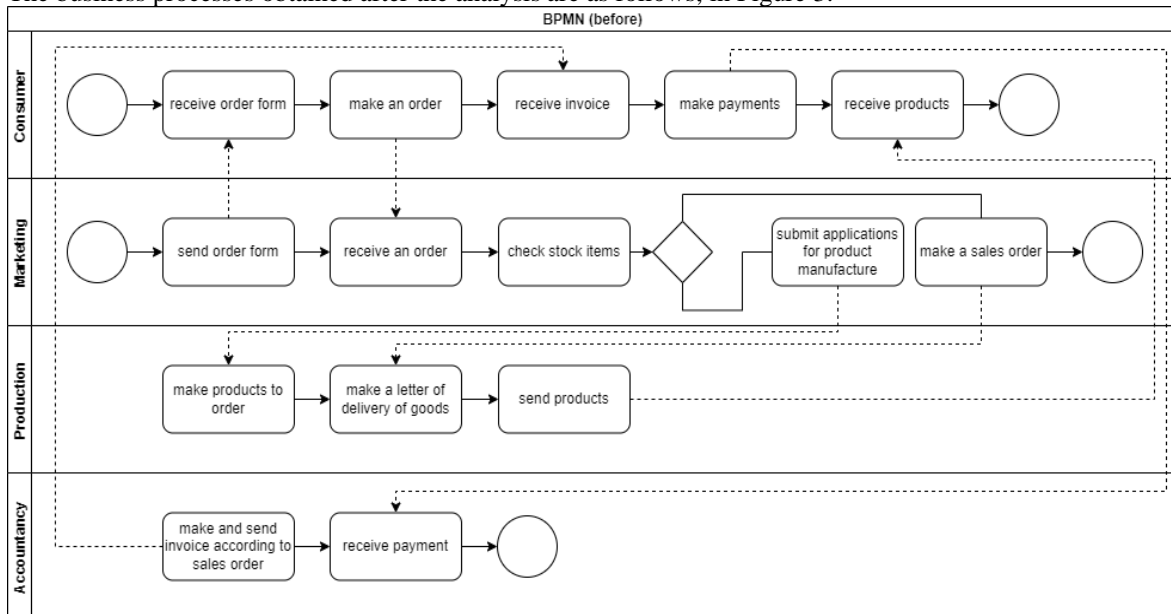


Figure 3. Business processes design

3.3. Business Process Improvement

This stage analyzes problems in business activities and activities that need to be improved using the 12 streamlining tools contained in the Business Process Improvement (BPI). It is hoped that changes can be directed into business process activities that interfere with the ongoing business processes.

3.4. Five Whys analysis

Five whys help find the core of the problem that occurs in the business process to be analyzed. Based on BPMN in convection companies, it shows that there is a process that should be carried out by the production process, but this is still in the marketing department. This is one of the processes that causes the length of the process to be less efficient. In the case of the convection business process speed is one of the factors that improve the quality of the company.

3.5. Business Process Improvement Plan

After conducting an analysis using five whys analysis, the next step is to design the improvement process. Business process improvement is intended to produce a process improvement design by looking at the core of the problems that have been analyzed previously. This improvement process is carried out using the help of streaming tools from the business process improvement. The results of this process form the basis for the preparation of business process recommendations. Business process improvement, seen in Table 2.

Table 2. Business process improvement

Problems with Business Processes (beginning)	Streamlining	Recommended business process
The confirmation process for ordering products is still being carried out in the marketing.	Upgrading	I moved the confirmation process to the production and distribution department because it was more time efficient.
Order data has not been stored in the database, so it is still done manually.	Upgrading	Added order data storage to the database to make it easier to integrate data across all actors.
The product invoice has not been stored in the database, so it is still done manually.	Upgrading	It has added order data storage to the database to make it easier to integrate data across all actors.
The report has not been saved in the database, so it is still done manually.	Upgrading	Added order data storage to the database to make it easier to integrate data across all actors.
The report generation process is still making two reports with almost the exact needs.	Eliminating	Report simplification for only one report.

3.6. Business Process Recommendation

The next stage after the design is to make recommendations on business processes carried out by modeling the recommendations that have been made previously. Business processes that have been evaluated and the design of business process improvements can be modeled on recommendations. Table 3 shows recommendations for the business process of a convection company.

Table 3. Recommendations for the business process of a convection company

Business Process	Start Business Process Activity	Activity changed or removed
Order confirmation	The marketing department does confirmation	Confirmation is carried out by the production and distribution department
Product order	The data has not been saved in the database	Data saved into a database
Product Invoice	The data has not been saved in the database	Data saved into the database
Sales report	The data has not been saved in the database	Data saved into a database
The report generation process is still making two reports with almost the same needs	Eliminating	Report simplification for only one report

Then, the business process recommendations for convection companies are shown in Figure 4.

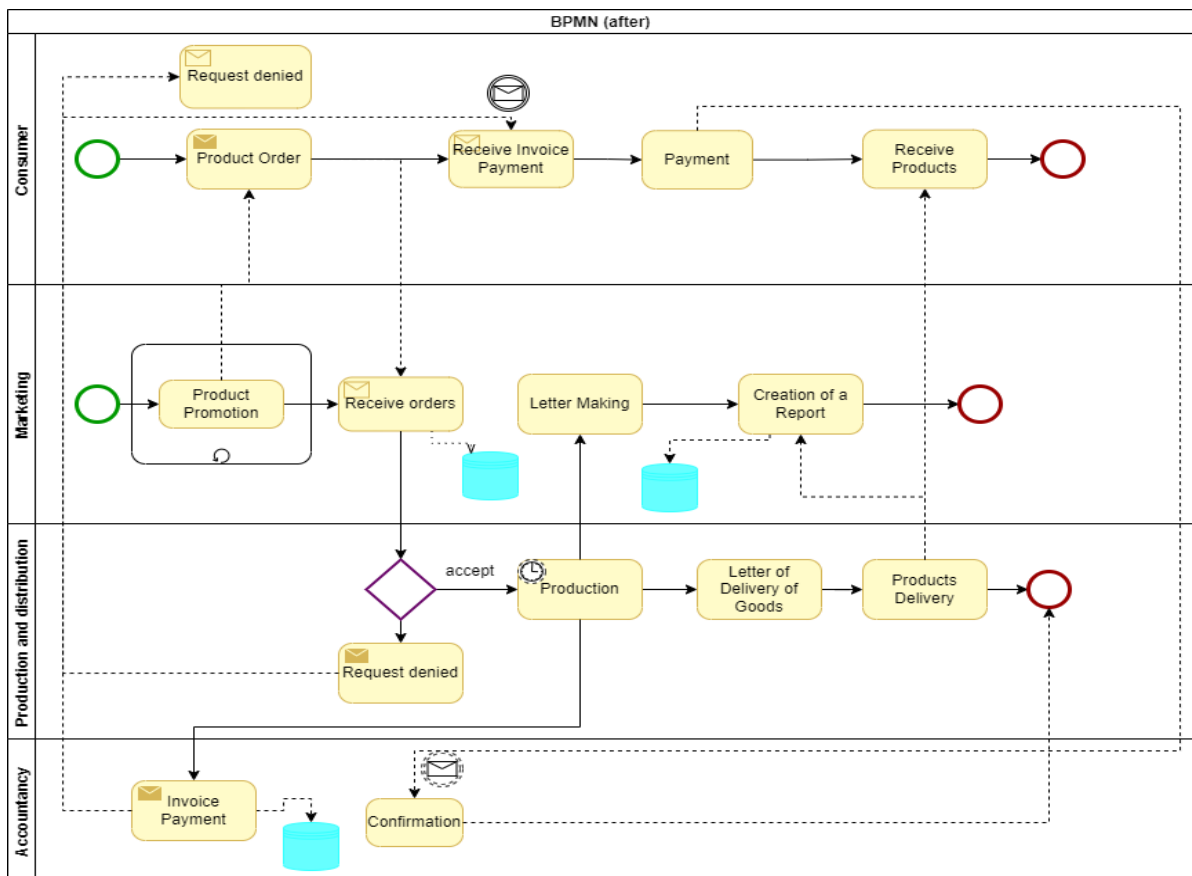


Figure 4. Business process recommendations for convection companies

4. CONCLUSION

The conclusion from this research is the analysis using the value chain and decomposition of the central business processes obtained at the convection company are product orders, product invoices, and product purchase reports. Then, the evaluation using the five whys analysis method got to the core of the business process's main problems, including order confirmation, order data, product invoices, product reports, and making reports in duplicate. This can make business processes more efficient and integrate data to be better managed using databases.

REFERENCES

- [1] A. Nowak, F. Leymann, and D. Schumm, "The differences and commonalities between green and conventional business process management," *Proc. - IEEE 9th Int. Conf. Dependable, Auton. Secur. Comput. DASC 2011*, pp. 569–576, 2011, doi: 10.1109/DASC.2011.105.
- [2] H. Hutahaean, "Analisis faktor faktor yang mempengaruhi pendapatan usaha kecil menengah (ukm) masa pandemi covid 19 di kabupaten deliserdang," *J. Econ. Strateg.*, vol. 1, no. 1, pp. 1–10, 2020, doi: 10.36490/jes.v1i1.94.
- [3] Widayanto, "Analisis proses bisnis usaha mikro kecil menengah (UMKM) konveksi ryan collection di kabupaten kodus," *J. Adm. Bisnis*, vol. 6, no. 1, pp. 24–30, 2017.
- [4] F. Emiliani, S. Rizqiana, R. Suhandito, N. N. Muchibbah, R. Nurmahfidhoh, and M. A. F. Habib, "Analisis pemberdayaan UMKM pada masa pandemi COVID-19," *SOSEBI J. Penelit. Mhs. Ilmu Sos. Ekon. dan Bisnis Islam*, vol. 1, no. 1, pp. 83–94, 2021.
- [5] D. Sugiri, "Menyelamatkan usaha mikro, kecil dan menengah dari dampak pandemi COVID-19," *Fokus Bisnis Media Pengkaj. Manaj. dan Akunt.*, vol. 19, no. 1, pp. 76–86, 2020.
- [6] R. Kumala and A. Junaidi, "Strategi bisnis dan pemanfaatan kebijakan pajak di masa pandemi COVID-19 dan era new normal (studi kasus pelaku UKM marketplace)," in *Pros. Semin. STIAMI*, 2020, vol. 7, no. 2, pp. 98–103.
- [7] S. J. Raharja and S. U. Natari, "Pengembangan usaha umkm di masa pandemi melalui optimalisasi penggunaan dan pengelolaan media digital," *Kumawula J. Pengabd. Kpd. Masy*, vol. 4, no. 1, p. 108, 2021.
- [8] K. Budiman, S. Subhan, and D. A. Efrilianda, "Business process reengineering to support sustainability of the sales commodities in large transaction with quotation system," *Sci. J. Inform.*, vol. 8, no. 1, pp. 84–91, 2021.
- [9] O. Khoirunnisa, D. A. A. Pertiwi, E. N. Dianti, A. M. M. Fattah, and K. Budiman, "Improvement business process model and notation on the drink distribution industries using six core element," *J. Soft Comput. Explor.*, vol. 2, no. 2, pp. 99–106, 2021.
- [10] O. A. Rashid and M. N. Ahmad, "Business process improvement methodologies: an overview," *J. Inf. Syst. Res. Innov.*, vol. 5, pp. 45–53, 2013.
- [11] J. Hutagalung, N. Y. Setiawan, and R. I. Rokhmawati, "Analisis dan pemodelan proses bisnis menggunakan business process improvement (BPI) (studi kasus: penginapan griya brawijaya)," *J. Pengemb. Teknol. Inf. dan Ilmu Komput. e-ISSN*, vol. 2548, p. 964X, 2019.
- [12] L. Setiyani and R. Rachmawati, "Pemodelan business process improvement aplikasi antrian pengambilan stnk (studi kasus: kantor kejaksaan karawang)," *JUST IT J. Sist. Informasi, Teknol. Inf. dan Komput.*, vol. 11, no. 2, pp. 1–7, 2021.
- [13] A. Sunoto, "Evaluasi proses bisnis akademik stikom dinamika bangsa melalui pendekatan business process improvement," *J. Ilm. Media Siso*, vol. 14, no. 2, pp. 94–110, 2020.
- [14] N. Ismail, A. Komari, and S. Rahayuningsih, "Analisa proses bisnis satuan layanan dan administrasi di kantor perwakilan bank indonesia kediri menggunakan metode business process improvement (BPI)," *JATI UNIK J. Ilm. Tek. dan Manaj. Ind.*, vol. 2, no. 1, pp. 33–45, 2019.
- [15] D. S. Hormansyah and Y. P. Utama, "Aplikasi chatbot berbasis web pada sistem informasi layanan publik kesehatan di malang dengan menggunakan metode TF-IDF," *J. Inform. Polinema*, vol. 4, no. 3, p. 224, 2018.