Business Process Re-engineering of KE and ES Marketing
Sales and Distribution Process utilizing S4 Hana

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Abstract

Business Process Re-engineering as a form of improving Sales assists the improvement of a company’s function. SAP Sales and Distribution, as an example, implement better management workflow while improving current business processes. To apply the principles of Business Process Re-engineering, the authors had to select a company (KE and ES Marketing) with understanding the improvement of their current process while discovering how to integrate different departments through ERP Systems. Analyzing the current processes led the authors to choose tools, such as Flow Process Charts and Service Blueprints to gather data on time-related durations, failures, and waiting times to analyze the business. The authors also retrieved company reports, followed by the execution of to-be processes through S4 Hana. In doing so, the authors were able to follow the flow of S4 Hana configuration by using Handbooks that would replicate current functions and orders of KE & ES Marketing. The results and discussion also assisted in the improvement opportunities and analysis of processes compared to the authors’ transactions through S4 Hana. Processes and changes in the future are to improve the system. The authors were able to configure current activities related to sales and distribution, such as Customer Request for Orders, Sales Orders, Display Stock Overviews, and Creating Invoices. Configurations are not limited to reduced times, better definition reports, and better customer information. The results and discussions showed that using the S4 Hana improves the productivity of the processes by around 82% percent on average. The benefits for Supplier Industries through this study provides an example of handling financial and transactional issues faced. Around the business, the impact of conducting the will provides a reference for company owners and Supplier Industries in opting for organizing workflows. The results generated by the system show how small businesses, for instance, can benefit their tasks through SAP’s Sales and Distribution.

Keywords

1. Introduction

Supplier Industries operate under the idea of sourcing goods, supplies, and services. Businesses work out as source providers in coordination with transactions from the original supplier while carrying out the contracted tasks quantitatively within a specific contracted timeframe. It acts as middlemen, retailers, or wholesale distributors. It is customary to enact the arrival of the product from original manufacturers and end-users.

KE & ES Marketing is a business that focuses on retailing various products such as inventory ingredients, wine, table utensils, and many more. KE & ES stands out in supplying places that look for premium and affordable products, such as goods from Spain and Italy, and the products are more affordable for the clients due to the better prices the company provides.

The company focuses on providing service for clients that need supplies from a supplier such as the KE & ES Marketing company; usual clients would be hotels in the Philippines. The KE & ES Marketing company advertises through calling cards to contact the company owners directly.

The company operates and resupplies company products by receiving bulk supplies from the manufacturer. Products are then sold to clients for a lower price compared to other supplier companies or similar businesses.

Since KE & ES Marketing is a business with different departments, integrating an ERP system is suggested for the management of workflow and business process of the business. An Enterprise Resource Planning system is a type of business management program that enables a company to use integrated applications. ERP systems simplify and
streamline operations, resulting in a more lean, accurate, and effective service. ERP allows the company to have better insight into its operations.

1.2 Current situation of KE and ES Marketing
KE and ES Marketing currently utilize the traditional way of business processing. They do activities such as recording, computing, scheduling, labeling, and contacting as some of the manual processes and the business uses tools such as papers, notebooks, and excel to record and operate their day-to-day transaction. The methods used were noticeably outdated and lacking in terms of automation. With these methods, there are challenges encountered that resulted in human errors of incomplete transactions, which can be seen in the following figure.

1.3 Problem Analysis Diagram
The problem analysis present made use of Why-Why Diagrams explains the present situation of the company. The given problems on incomplete transactions span factors related to both business processes and outputs.

![Problem Analysis Diagram](https://example.com/ke-es-marketing-diagram.png)

Figure 1. Problem Analysis (Why Why) Diagram of KE and ES Marketing

Incomplete transactions are not merely a result of errors, KE and ES Marketing encounters transactional errors due to wrong client information, typographical errors, and wrong computations due to numerous inputs. Problems encountered based on the diagram are the following:

1. **Wrong Information** - Information is dependent on client decisions and provided information. Changes depending on client decisions affect the result of transactions.
2. **Typographical Error** - Inputs are based on the employee/owner who will work on the given information.
3. **Wrong Computation** - Numerous inputs of information for transactional content results.

The authors were also able to record aspects such as informational and inputting errors through the given diagram. In the Problem Analysis Diagram, KE and ES Marketing experienced incomplete transactions during its current situation. With the current situation in the figure, relating to the business system can be determined.

As a sole proprietorship needing reliance on automation, the need for assistance in the business process remains a priority. The result of such problems brings businesses into the need for orientation and restructuring to a better system. The impacts of business problems result in incorrect information and excess data in part of the business; considering the status as a small business, it will be strenuous to continue transactions in managing client orders and information.

1.4 Objectives
The researchers intend to follow the following objective regarding the re-engineering of the sales and distribution process of KE & ES Marketing:

1. To improve the sales and distribution processes by utilizing S4 Hana to better the decision-making of owners.
2. To improve and increase the current time-consuming processes of KE and ES Marketing.
3. To provide reports that can easily monitor business transactions.

The settled objective is in line with the sales and distribution business process of KE & ES Marketing. The re-engineering of the said business process by the SAP S4/Hana Platform will benefit the accuracy and workload efficiency of the business.
1.5 Significance
The researchers have found that KE and ES Marketing still uses traditional transaction processes through their current inventory and monthly reports. Through the utilization of S4Hana, the study will allow KE and ES Marketing to lessen the time spent in their current processes. Asides from improving the time spent in transactions, the research study will allow KE and ES Marketing to lessen processes prone to errors by using the system.

2. Review of Related Literature
In line with the scope of the research and study conducted by the researchers regarding BPR and the utilization of ERP systems in a current business, the researchers identified that similar studies have been developed and evaluated. According to a study conducted by Bhaskar (2018), BPR methodologies could stem from learning experiences based on failed attempts at change. This is in the form of a change framework done in an organization in India wherein BPR has been seen as the best possible way for complete beneficial change within the organization. In ScienceDirect (2018), it was cited that a BPR could be aided by a new form of ERP system which is the S-ERP which integrates the sustainable and decisional areas of system re-engineering and project management. ERP systems have been deemed as universal and compatible with almost all types of organizations and businesses conducted by Masa'deh et al. (2017) noted that there is overwhelmingly large usability and scope for ERP. Most recently being integrated into the accounting and auditing areas of organizations. This results in ERP being able to streamline an organization's business process. Such research results in findings that ERP and BPR fundamentally improve the quality of products, services according to the study of (Bhavsar et al. 2019). They noted that not only that it made organizations more efficient, but it also helps organizations face competitors head-on by cutting operational costs which are brought upon by the restructuring of the business process. This result is supported by another study conducted by Jinno et al. (2017) to analyze the overall effectiveness of ERP implementation. Their findings coincide with the previous study that restructuring using ERP indeed creates a more efficient workflow. Another study tends to also support this evaluation by comparing the concept of PLCF against BPR wherein BPR has produced a faster beneficial impact on the sample organization compared to the PLCF concept (Bhavsar et al. 2019). Lastly, in line with the client company of the study, similar research conducted by Chang et al. (2019) noted that BRP utilizing ERP implementation is seen as a viable option for the supply-chain industry as seen in the implementation of the blockchain-based system on a supply-chain business in the US which resulted in the business to be more efficient and sustainable.

3. Methodology
3.1 Define Current Business Processes
The researchers were able to define the current sales process on KE and ES marketing through interviews with the owner of the company, and the researchers asked them about their company background, current business process, structures, and problems in their business.

3.2 Analyze Current Processes
The tools used to analyze the current processes of the business involve the use of FPC (Flow Process Charts), and Swimlane Diagram in current processes. The use of the Process Chart determined the time-related durations in conducting business processes. Swimlane, on the other hand, helped determine specific tasks per department and pinpoint failures of the given processes while determining the waiting time in relation. The time of the processes is also measured to get the Time efficiency of the processes.

3.3 Define Automation Process of Future State
The researchers were able to automate the Sales Department processes of KE & ES Marketing using S4 Hana. Through the processes in SAP's Sales and Distribution, the automation of the sales and distribution process of KE & ES Marketing has been streamlined. This has been made possible through the configuration of the Create Sales Order, create outbound delivery, Ship materials/Post Goods Issue, and Create Invoice. These were integrated based on the needed improvement of the As-is process of the Sales Department to boost its productivity.

4. Results and Discussion
4.1 As-is process(es) of the selected system(s)
The researchers use the Swimlane Diagram to show the current process and this will help the researchers understand the service process from the customers to employees perspective to assist the service design and improvement of processes into a more efficient and effective service.
Figure 2 shows the As-is Swimlane Diagram of the Sales Department, it starts with Customer making an order to the company via email, chat, SMS, then the company will receive their request that will be noted and recorded in excel, followed by the Sales inquiring the inventory to check their stocks in excel and stock room if there are available stocks of the product, this has a possible error because there might be a typographical error or missing information. If there are no stocks, the staff will make an order to the supplier, and ask when it can be delivered, if it is on time, the sales will accept the order, if not, they will refuse it. And if there are stocks, the sales will immediately approve it and give the order list for the order to be prepared by the inventory staff. The inventory staff will then create the Delivery Receipt and hand it over to the Delivery staff. The possible error is miscommunication since there is no updated record that the staff can rely on and that it takes a long time. Then the Finance staff will write up the invoice of the product and hand it also to the Delivery staff, but it will have a possible failure because of writing the wrong price or wrong computation so the company will have to void it. The delivery staff will then deliver the order and wait for customer payment.

4.1.2 Determine the cycle time of the process(es).

To determine the cycle time of the Sales process the researchers use the Flow Process Chart to state the activities, record the time it takes for it to be done, and categorize what specific operation it occurs. This chart is frequently used when the process is sequential and has areas that can be improved.
Figure 3 shows the As-is Flow Process Chart, and it has similar activities being done from the service blueprint, but activities such as Received Client order in different forms, Record Order in excel, Check Inventory Stock in Excel and Storeroom, Give Order List and Update each department Excels can be further improved. This chart also provides the time and distance the action takes and in the case of the As-is process of KE and ES Marketing Sales, it takes 73 minutes in total to finish the process and 14 meters of distance to travel.

4.1.3 Current reports of the company

The data gathered from the existing system includes documents that are being used for decision making and monitoring are the following:

Figure 4 shows the As-is Documents and KE & ES Marketing has presented the researchers with the current data that the organization has kept. Using this, the researchers would be able to analyze and evaluate the current productivity and status of the organization. The attached image above is an example of KE & ES Marketing's as-is documents containing their inventory and monthly reports. The excel for the monthly sales showcases the totality of the sales and transactions that KE & ES Marketing has accomplished. The excel of customers displays the previous records of customers that have partnered or purchased the services of the company. The excel of products features the list of products and stocks of the company that is currently on inventory along with their respective count. Lastly, the figure also exhibits the actual hardcopy of KE & ES Marketing's Sales Invoice, and Delivery Receipt which is being currently used as receipts for their sales and transactions.

4.2 To-be process(es) using ERP (S4 Hana).

The researchers use the Service Blueprint Diagram to show the process when S4 Hana has been implemented in Sales and Distribution and to showcase the area of improvement in the proposed process.
Figure 5. Proposed Service Blueprint of KE and ES Marketing Sales Department

Figure 5 shows the Proposed Service Blueprint of the Sales Department using ERP, it starts with the Customer requesting the order, then the company will create a sales order where details and computation of prices are assuredly accurate, and then they can check the stocks if there is sufficient supply, and then they would be able to create outbound delivery. The order will be packaged with customer details and handed over to the Delivery Department. It will be followed by ship materials which will be confirmed and then the company will be able to create the invoice and receive payment when confirmation of payment is proved.

4.2.1 Screenshots of the proposed sales Processes in s4hana
The results of the automation are the forms and documents that can be prepared and generated by the system, which is the following:

Figure 6. Proposed Configuration-Execution / Create sales order / Create outbound delivery/Ship Materials/Create Invoice

Figure 6 shows the researcher's proposed configuration of the sales and distribution process of KE & ES Marketing. Using the sales and distribution features of SAP 4/Hana, the sales process could be streamlined and organized properly and efficiently. Included in the figure is the creates a sales order portion of the sales and distribution process wherein
the sales order of a specific transaction is being generated. Lastly, the creation of the outbound delivery process in the sales and distribution process which handles the execution of the outward delivery of the transaction which is part of the final stages of the sales process in the new proposed execution for KE & ES Marketing.

4.2.2 Determine the cycle time using ERP.
To also determine the cycle time of the Proposed process the researchers use the Flow Process Chart to state the changes in the activities, and from the time it takes for an activity to be done.

Figure 7 shows the Proposed Flow Process Chart, it shows the similar activities being done from the proposed service blueprint, but it can be seen that due to the different activities in the proposed process there has been improvement in the sequence of the activities, especially on receiving orders and creating sales orders. This chart also shows the time and distance the action takes and in the case of the proposed process of KE and ES Marketing Sales, it takes 16 minutes in total to finish the process and no distance to travel. This shows that through the utilization of S4 Hana the Proposed process has minimized the time incurred compared to the As-is process.

4.3 Comparison of Improvement (As-is vs To-be)

Table 1. Time Efficiency of As-is vs To-be (Proposed) Process Activities

<table>
<thead>
<tr>
<th>Activities</th>
<th>Current</th>
<th>Improved</th>
<th>Rate of Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer Request for Order</td>
<td>15 (Minutes)</td>
<td>5 (Minutes)</td>
<td>67%</td>
</tr>
<tr>
<td>Create Sales Order</td>
<td>15 (Minutes)</td>
<td>1 (Minutes)</td>
<td>93%</td>
</tr>
<tr>
<td>Access Display Stock Overview</td>
<td>5 (Minutes)</td>
<td>1 (Minutes)</td>
<td>80%</td>
</tr>
<tr>
<td>Create Invoice</td>
<td>10 (Minutes)</td>
<td>1 (Minutes)</td>
<td>90%</td>
</tr>
<tr>
<td>Receive Payment</td>
<td>15 (Minutes)</td>
<td>8 (Minutes)</td>
<td>82%</td>
</tr>
</tbody>
</table>

Table 1 shows the Time Efficiency of the activities in detail, which focuses on the as-is process and proposed process, and the result shows the increase of improvement of time efficiency with a total percentage of 82%. Thus, proves that the use of improved processes is effective in reducing the time spent in the process.
4.4 Reports Provided by ERP (S4Hana)

To improve the decision making of the users, the system can generate a relevant report in the SD processes, and it can also be customized based on the user requirements which are:

![Figure 8. Customer List Report](image)

Figure 8 shows the Customer list report, and this report enables the business to check their customer's data, such as name and location and ensures information accuracy.

![Figure 9. Stock Overview Basic List Report](image)

Figure 9 shows the Stock Overview basic list report, and this report enables the business to check the details and quantity of their material and it can also check the status of the stock, an example of this is when the business order, there would be a quantity on the On-Order Column.
Figure 10. Display Warehouse Stocks of Material

Figure 10 shows the Display Warehouse Stocks of the Material report, and this report also enables the business to check the details and quantity of their material, but it also displays all materials, and it includes the total cost of the material stock.

Figure 11. Display Material Prices

Figure 11 shows the Display Material Prices report, and this report enables the business to check the prices of the materials/products to be sold to the customer so that the automated price computation is correct and accurate.

Figure 12. List of Sales Order Report

Figure 12 shows the List of Sales Order Report, and this report enables the business to check all existing Sales Order and ensure that the information is correct. Additionally, the layout of the information of the report can be changed to the needs of the business.
Figure 13 shows the List of Outbound Deliveries Report, and this report enables the business to check the delivery and ensure that it has the correct information and that it was picked and delivered on time to the customer. The layout of this report can also be customized.

Figure 14. Display Customer Balance Report

Figure 14 shows the Display Customer Balance Report, and this report enables the business to check the current balance of a customer. This report shows the total sales gained from the customer and the existing balance the customer must pay.

Figure 15. List of Outbound Deliveries Report

Figure 15 shows the List of Outbound Deliveries Report, and this report enables the business to check the existing bill documents with a customer, and similar to the other reports, its layout can be customized.

Figure 16. G/L Account Line Display

Figure 16 shows the G/L Account Line Display, and this report enables the business to see the flow of money in the bank. Their costs, sales, and the total amount of money within a specific date.

5. Conclusion

This research was done since there are many businesses out there that need help in their business process. The popularization of Enterprise Resource Planning (ERP) Tools help an organization's efficiency and productivity by
automating activities, better use of money, time, and resources; businesses are motivated to improve their business process using the ERP.

In this paper, the main problem is the incomplete transactions faced by the sales department due to various transaction errors caused by the traditional and manual way of recording customer data and completing transactions. To further analyze this problem, the researchers conducted analysis tools to devise a solution to resolve this problem; it was to use SAP so that the interface will simplify the processes, time, and improve the workflow of data to be recorded directly to the SAP database.

Upon implementation of S4 Hana, specifically SAP's Financial, Purchasing, and Sales & Distribution, the SAP applications could help improve and prevent human errors previously experienced by the company. Firstly, all mentioned SAP platforms could help ease handling any financial, inventorial, and transactional problems. Since KE & ES Marketing is a supplying business, purchasing stocks and updating the inventory is a vital process for the business. Using SAP Purchasing, ordering stocks, and managing inventory of products are stored and recorded in a very efficient way. The financial side of SAP could prevent human errors in areas of miscalculations and financial management since funds always revolve around the business. Lastly, using SAP's Sales & Distribution could help prevent problems within the business process because the distribution of information, product details, stock inventory, financial allocation, and many more are handled in a very accurate and efficient way using the SAP Sales and Distribution features and business management, and these advantages will certainly assist KE and ES in monitoring and improving their workflow.

This resulted that for the as-is and proposed process, there is a decrease in time spent on activities, and by automation of SAP, it lessens the possibility of incomplete transactions and human error. The generated reports also helped the users to make decisions about business operations. This proves, designing an automated business process improves the traditional business methods to eliminate the common problem that KE and ES Marketing had to deal with transaction errors and reduced time spent completing transactions.

References

Biographies
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