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INFORMATION SYSTEMS DEVELOPMENT AND TECHNOLOGY PLAN FOR RCM STEEL WORKS, CORP

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ABSTRACT
RCM Steel Works is a two-year-old manufacturing business that sells and transports farm tools to TADECO and Unifrutti and numerous locations in the Philippines, including Mindanao and Luzon, notably Pampanga. The manual system presents many problems, such as duplicated data, mismatched amounts of data, and other possible issues that manifest during the process. The research will focus on RCM Steel Works' current business flow, the company's history, important stakeholders, and unique difficulties and challenges the company has faced, such as mismatched receipt amounts. The analysis will go through the potential consequences and the company's advantages. TPS is used in many different domains by companies all around the world. Companies have employed various transaction techniques in the past to fuel the rise of the business' economies.

Keywords: Business Process, Business Workflow, Information Systems, Transaction Processing System, IT Infrastructure

INTRODUCTION
Background of the Company
RCM Steel Works started last 2020, and it is a manufacturing company, but the business has been in the industry since 1991. The office is located at RFTI bldg., San Fransisco, Panabo City beside Motorzone.
The company's initial name was REL Steel Works which was derived from the name of the current Operations Head's mother, and the RCM stood for Ronaldo C. Manching, the company's father and the founder of the business. Julian Manching, Operations Head, and Imee Celine ManchingGonzaga, Finance, are the founder's offspring, and facilitated the improvement and success of the business.
On the other hand, RCM Steel Works offers a wide range of products, including farm tools, and the company have been supplying a variety of tools to companies such as TADECO and Unifrutti, among others, and the business has expanded beyond the parameter of Davao del Norte.
The company provide high-quality farm tools that could help produce agricultural products like bananas in TADECO and make the RCM Steel Works improve the level of competitiveness.
Aside from all the success, the company's basic plan is to help the church by providing the needed and valuable things.

Current Routine and Business Process

Current Routines

The weekly routines of the RCM Steel Works are checking up on the Purchased Orders (PO), Delivery Receipts (DR), and Charge Invoices (CI) to manage the bills, the items being ordered, and the payments of orders. Aside from checking the essential papers, the Operations Head himself and his sister maintain the cleanliness of the office and re-organize things, such as separating and placing the same products into one place. Also, the Operations Head monitor the business' employees regarding with the production of farm tools. On a monthly basis, the Operations Head collect the company's customer's payments and directly analyze the business' finances to pay the bills, salary wages, and have a monthly income.

Table 1. Event Table of RCM Steel Works, Corp.

Start Time	End Time	Task Log in	Time Duration
7:00 AM	7:30 AM	After arriving at the office, the staff will start arranging and cleaning the office.	30 MINS.
7:30 AM	11:30 AM	Checking the PO, DR, CI and the business' inventory board to know the scheduled deliveries and payments.	4 HRS.
11:30 AM	12:30 PM	Lunch Break.	1 HR.
12:30 PM	3:45 PM	Resume of work activities such as checking the documents.	3 HRS. AND 15 MINS.
3:45 PM	4:00 PM	Break Time.	15 MINS.
4:00 PM	4:30 PM	Log Out (No Overtime) – clean up and checks the area before leaving.	30 MINS.

Business Process

RCM Steel Works, Corp. — is a direct supplier to big companies such as TADECO and UNIFRUTTI, and the company sell farm tools. Family members oversee it since it is a family business. Aside from the Operations Head and Finance, the company have seven regular employees in total, and the business has been a supplier in many businesses that provide high-quality farm tools to use in other companies' production.
Upon delivering the farm tools, the Operations Head has ensured that every product is well-crafted. Moreover, the business do a manual way of recording the transacted data like receipts and a manual way of doing an inventory, making it quite hard to locate the scheduled deliveries, precise payment amount, and the numbers of farm tools purchased.

Problems Found

- **Inventory.** The RCM Steel Works, Corp. did not have a paper-based inventory process or an electronic process, but the company used a whiteboard to put all of the necessary information, and that is very risky for the reason that the Operations Head sometimes forgot to update it and that will be the cause of information mismatch.
- **Transaction.** Based on our interview, the company does not have a transaction process that could efficiently process the buyer's purchased items.

- **Receipt.** There are times that the owner seem to forget to look keenly at the PO that might affect the outcome of the DR and CI and might have an amount mismatch, and if that happens, the business have to redo signing up the papers, and it's a waste of time and a delay to the deliveries.

Goals and Objectives

General Objective

The researchers are anticipated to suggest an Information System (IS) that will serve and assist business data and improve the company's manual transaction processing procedure. Improve and expand on existing business transactions and management services. Additionally, offer accurate information that will assist the organization in providing better service and trade.

Specific Objective

The following are the specific objectives of this development plan:

- Replace the current manual processing method which will be using an electronically upgraded for a faster resolution.
- Propose an appropriate IT infrastructure plan that supports our proposed Information System and business workflow.
- Upgrade the business management skills and supervision by implementing modern methods to enhance the business Transaction Processing System.

Organizational Structure

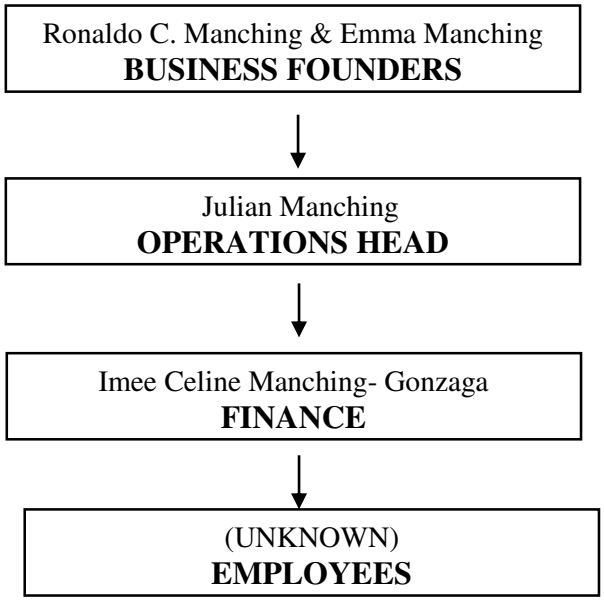

Figure 1: Organizational Structure of RCM Steel Works,

Figure 1 shows that RCM Steel Works, Corp. has business founders that start the success of the business, followed by the Operations Head that continues, runs, and facilitates the business's operational activities, followed by the finance who organizes the flow of the company and the business expenses, and the employees who do the production of the farm tools

Stakeholders

Stakeholders of RCM Steel Works, Corp.

Figure 2 shows the Stakeholders of RCM Steel Works, Corp.: Owners, Raw Materials Suppliers, Employees, Government, Communities, and Customers.

PROPOSED INFORMATION SYSTEM

Review of Related Study

Related Literature

The promise of the Internet and e-commerce has led to the increasing use of the web for transaction processing. Many organizations have adopted web-enabled transaction processing for applications such as processing payments online, selling products online, and making travel reservations to name a few [1]. Therefore, it is imperative to better understand the adoption of one of the important applications of the Internet for e-commerce – transaction processing, in small businesses [1].

The transaction process is widely used all over the world based on the system of the process which the system is using. Different systems are used for transactions and the process is having a different function for applying the transaction [2]. The earliest transaction processing systems were manual systems [3].

For many businesses, a transaction refers to an exchange of goods are services for money [3]. Today, many firms consider transaction processing to be their most important computer application [3].

Along with the rapid development of science and technology, Information Technology (IT) actors began to aggressively utilize these advances, to ease them in every affair. Also, the use of IT in supporting the effectiveness of company operations is very important [4].

Related System

A Transaction Processing System or Transaction Processing Monitor is set of information which process the data transaction in database system that monitors transaction program [5].

Transaction processing is the unambiguous and independent execution of a set of operations on data in a database, which treats the set of actions as a single event. In E-commerce, many transactions take place,

including checking for inventory and discounts, confirming the order, fulfilling the order, and processing of payment [1].

It appears that many companies and government agencies are interested in conducting transactions on the Internet due to reasons of efficiency and return on investment. The adoption of transaction processing in general is at best uneven among any businesses. It is therefore appropriate to examine the underlying reasons for adoption of web- enabled transaction processing especially by small business [1].

Some studies present that TPS is very helpful for the company in improving business routines which are recognized by organizations as a form of necessity to survive and succeed in the competition of the business environment. TPS also helps the business in making customers satisfied with their service. The more you offer a quality TPS to the customers, the more the customers will be attracted and kept loyal [6].

Name of Information System I

Transaction Processing System (TPS)

The Transaction Processing System (TPS) guarantees that adequate items or resources are available to fulfill demand without producing surplus or excess items and generating accurate data. Also, it will make the buyer and seller's transaction method much more manageable. This method enables business owners to keep track of things that have been sold and to assist the buyers with their purchased items. It boosts operational efficiency as well as client pleasure. The Transaction Processing System increases and improves data accuracy while also valuing the time and effort of both owners and employees. Also, it allows the business to be more error-free when producing receipts during the transaction.

Functionality

- It will automate the traditional transaction process
- Identify the items sold
- To provide easy transaction method
- Provide printed receipts like CI and DR for faster delivery

System Architecture

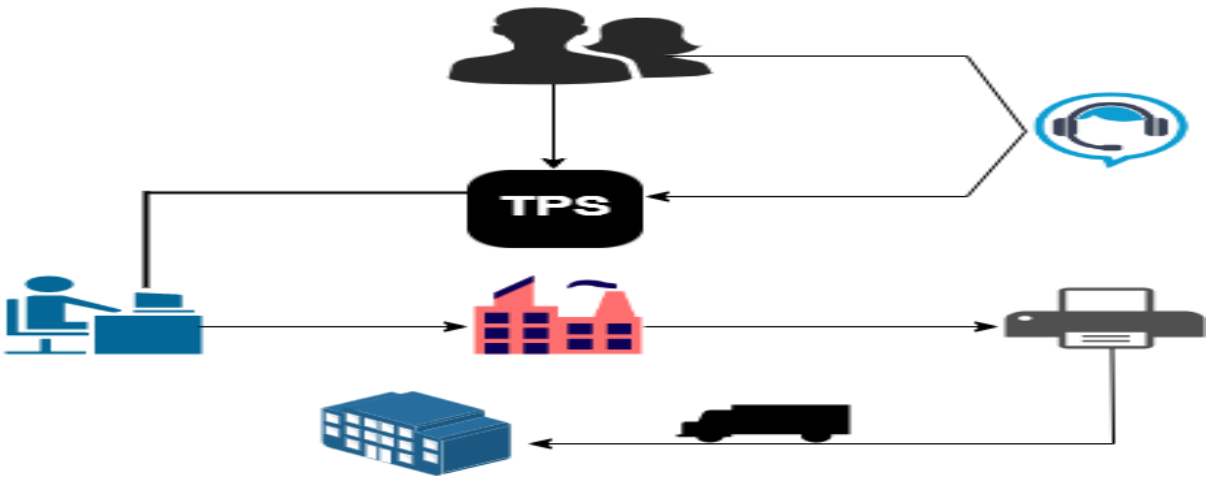

Figure 3: System Architecture of RCM Steel Works, Corp.

Figure 3 depicts the transaction flow of the business. The buyer will proceed immediately to the business' website, or purchasers in remote places can seek help from the company's Virtual Assistant to learn the facts and fill out the essential information for a speedier transaction procedure. After that, the allocated personnel

will verify the purchased orders and do the production process, and after everything, the business will generate printed receipts. After every phase, it is time to deliver the purchased farm tools to the client.

Economic Stability

Table 2. Economic Stability of RCM Steel Works, Corp.

Cost Description	Cost
Operational Cost	Php 77,129
Maintenance Cost	Php 4,406
Total Cost	**Php 81,535**

PROPOSED IT INFRASTRUCTURE

Proposed Computer Hardware

This proposed computer hardware will significantly assist the firm in speeding up transaction times and automating data entry. It will also create an e-receipt for the exact quantity of data entered.

Desktop Computer

This hardware could make it easier for the company to keep track of and manage its purchases. People rely on computers for everything from business to leisure and education.

Standard Printer

This piece of hardware will be an electronic receipt printer. It is necessary for all types of enterprises, whether minor or massive. Also, the amount of space an office printer will take up in the office is an important consideration.

Table 3. Proposed Computer Hardware

Computer Hardware	Specification	Unit Cost	Quantity	Total Cost
Desktop Computer	**OS:** Windows 10 Home **Processor Type:** Core i5 **Processor Model**: 11th Gen Intel Core i5-1135G7 processor **Screen Size:** 60.5 cm (23.8”) **Graphics Controller Model:** Intel UHD Graphics for 11th Gen **Ethernet Technology:** Gigabit Ethernet	Php 47,999	1	Php 47,999
Standard Printer	**Type:** All-in-one Printer **Power Consumption:** 13 Watt, 3.8 Watt Resolution: 5760*1440dpi **Print Speed:** 15ppm **Duty Cycle:** 20000 Pages **Monthly Print Volume:** 4000 Pages **Scanner Type:** Flatbed **Scanner Censor:** CIS **Scan Resolution:** 600x12000dpi	Php 3,500	1	Php 3,500
Overall Computer Hardware Cost		**Php 51,499**		

Proposed Operating System Platforms

Researchers created an operating system that can run apps that require updated windows in order to function correctly.

Microsoft Windows 10 Operating System

A Microsoft Operating System with built-in security and programs such as Mail, Calendar, Photos, Microsoft Edge, and others, for a variety of devices, including desktop computers, tablets, embedded devices, and other internet of things devices.

Table 4. Proposed Operating System Platforms

OS Platform	System Requirement	Unit Cost	Quantity	Total Cost
Windows 10 Pro	**Processor:** 1GHz **RAM:** 1GB for 32-bit or 2 GB for 64-bit **Hard Disk Space:** 16GB or 32-bit OS 20GB for 64-bit OS **Graphic Card:** DirectX 9 or later with WDDM 1.0 driver **Display**: 1024 x600 or above	Php 7,500	1	Php 7,500

Proposed Enterprise Software Application

The enterprise software application helps improve the company's performance. It is enterprise software that enables to serve the company's needs and solve their problems by providing an easy and convenient method.

Enterprise Resource Planning (ERP) Software

This is used to manage day-to-day company activities such as accounting, point of sale, project management, risk management, compliance, and supply chain operations, this system aids in the smooth and transparent functioning of the organization. ERP software automates business processes such as manufacturing, sales quoting, and more.

Table 5. Proposed Enterprise Software Application

Enterprise Software Application	Specifications	Unit Cost	Quantity	Total Cost
Enterprise Resource Planning (ERP) Software	• Enterprise-wide integration • Real-time operations • A common database • Consistent look and feel	Php 7,511	1	Php 7,511

Proposed Data Management

For corporate operations, data is a vital resource. Businesses, on the other hand, can use a database management system to gather, record, retrieve, and track inventory from their everyday transactions. It also safeguards enterprises against data loss.

Table 6. Proposed Data Management

Data Management	Specifications	Unit Cost	Quantity	Total Cost
Microsoft Office 365	• Excel	Php 3,499 (per year)	1	Php 3,499 (per year)

Proposed Network and Telecommunication

The researchers proposed Personal Area Network (PAN) which is efficient, cost-effective, and convenient. PAN is reliable to keep all the data secure and easy to use and it does not require frequent installation and maintenance.

Personal Area Network (PAN)

PANs can communicate with individual devices or connect to a higher-level network or the internet, with one primary device acting as a gateway. A PAN might be wireless or use wired connections.

Table 7. Proposed Network & Telecommunication

Network and Telecommunication	Specification	Unit Cost	Quantity	Total Cost
Personal Area Network (PAN)	PAN allows information to be sent across devices such as PCs, cellphones, tablets, and individual computerized aids.	Php 7,000	1	Php 7,000
UTP Cable	UTP Cable Patch Cord with RJ45 CAT 10m LAN Cable	120	1	120
Overall Network and Telecommunication Cost		**Php 7,120**		

Proposed Internet Platform

Consumer and business advantages, trade facilitation, and bringing consumers and producers together are all important.

E-commerce

Online services that assist businesses in promoting the business' goods. Allow consumers and businesses to purchase and sell things through the internet.

Social Media Platforms

Allow users to interact with one another, share information, and create web content. Because it helps you to reach, cultivate, and engage with your target audience, social media is crucial. The company might also provide information to a potential buyer via social media.

Table 8. Proposed Internet Platform

Internet Platform	Specification	Unit Cost	Quantity	Total Cost
E-commerce	Allow individuals to purchased online	FREE	1	FREE
Social Media Platforms	• Facebook • Instagram	FREE	1	FREE

Proposed IT Manpower

The researchers suggested that IT specialists assist business owners in managing IT infrastructures and making recommendations or proposals for more efficient and productive business operations.

Table 9. Proposed IT Manpower

IT Manpower	Job Description	Proposed Salary
Computer Technician	Updating or correcting current systems and dealing with hardware difficulties are all part of maintaining the corporate computer system.	Php 1,386 (Per Month)
Web Developer	In responsible of ensuring that websites are attractive and functional. They interact with website and graphic designers, track website traffic, troubleshoot website issues, and update websites as needed.	Php 2,500 (Per session)
Graphic Designer	Includes the complete process of formulating requirements, visualizing them, and developing graphics to aid in the growth of the company.	Php 520 (Per piece)

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

The study found that acquiring an Information System and IT infrastructure is necessary to enhance the transaction process. The researchers enthusiastically advocate Transaction Processing System to help the firm succeed.

RECOMMENDATION

Based on the data, the research suggests that RCM Steel Works, Corp. needs a website to help the business' transaction process. This website will spread inside the province's boundaries and throughout the Philippines. It is necessary to present IT infrastructure to attain operational excellence and significant revenues. This proposal will help the company to expand significantly.

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