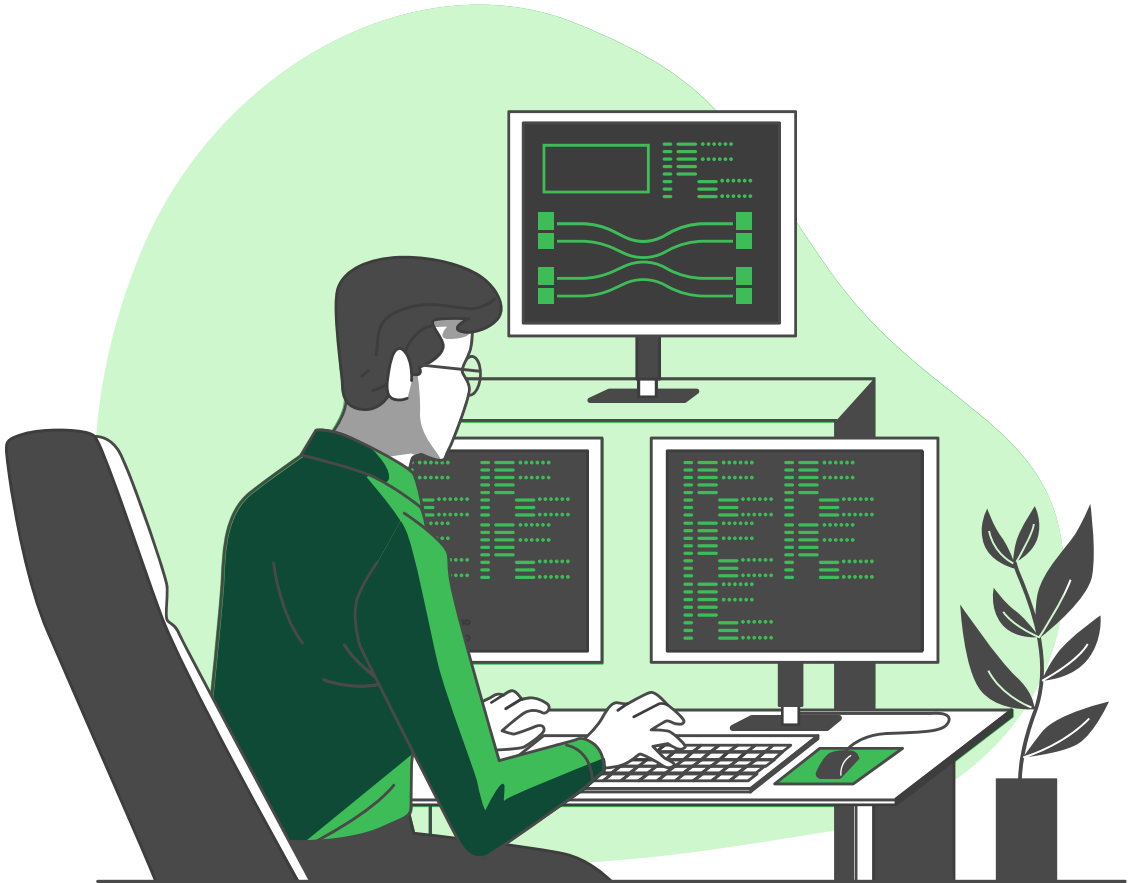


Caring Pharmacy

Business Process Management

Group R

01 COMPANY PRESENTATION

02 BUSINESS PROCESS AND AS-IS MODELS

03 PROCESS ANALYSIS

04 PROCESS REDESIGN AND TO-BE MODELS

05 IMPLEMENTATION PLAN

1

Company

Caring Pharmacy

Caring Pharmacy

Portuguese pharmacy in business since 1998

Stores located in 8 different Portuguese cities

More than 80 employees, from pharmacists to technicians.

Caring Lisbon Pharmacy

Open from 10 am to 6 pm

220 customers per day

7 employees – 4 technicians and 3 pharmacists

Business Problem

- Business process inefficient and slow
- Inability to serve every customer during opening hours
- Costumers' dissatisfaction

2

Business Process

Order-to-cash

Order-to-cash

01 Receive Client

02 Enter and Check Prescription

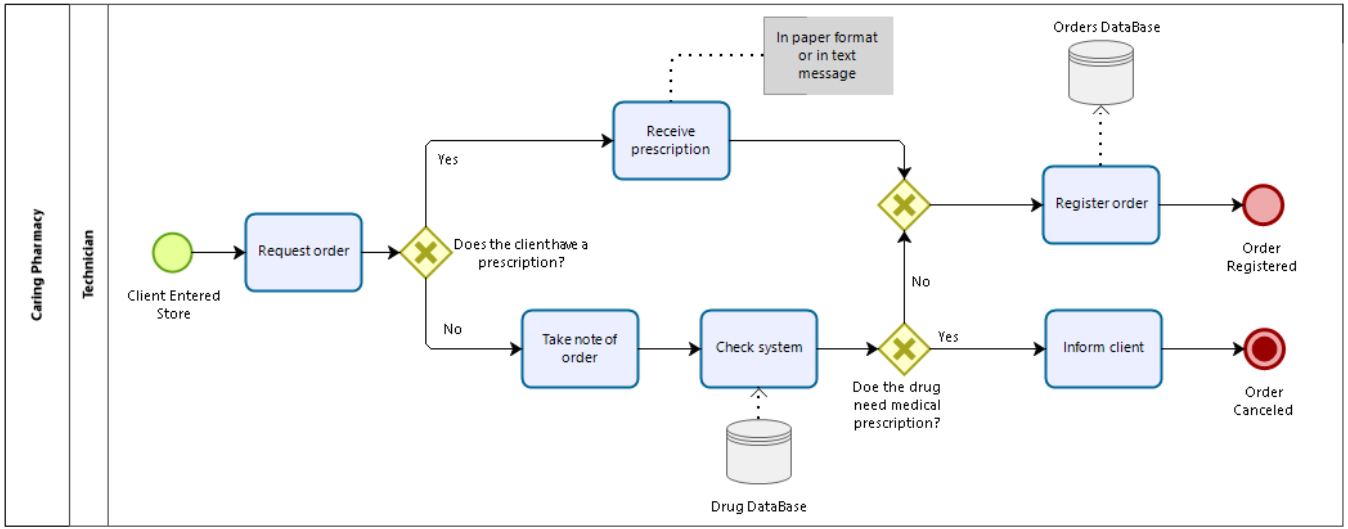
03 Fulfill Order

04 Deliver and Payment

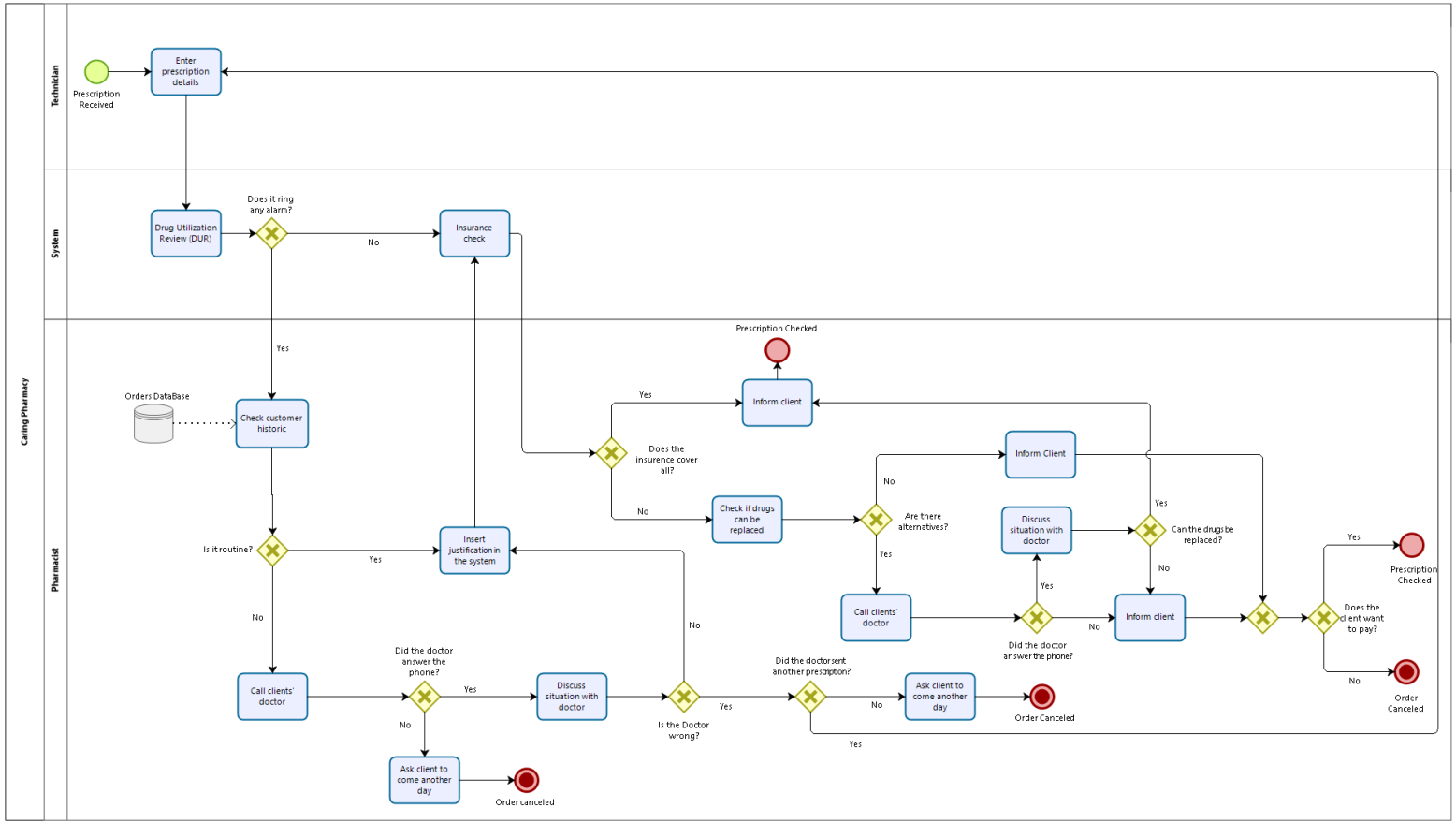
3

AS-IS Models

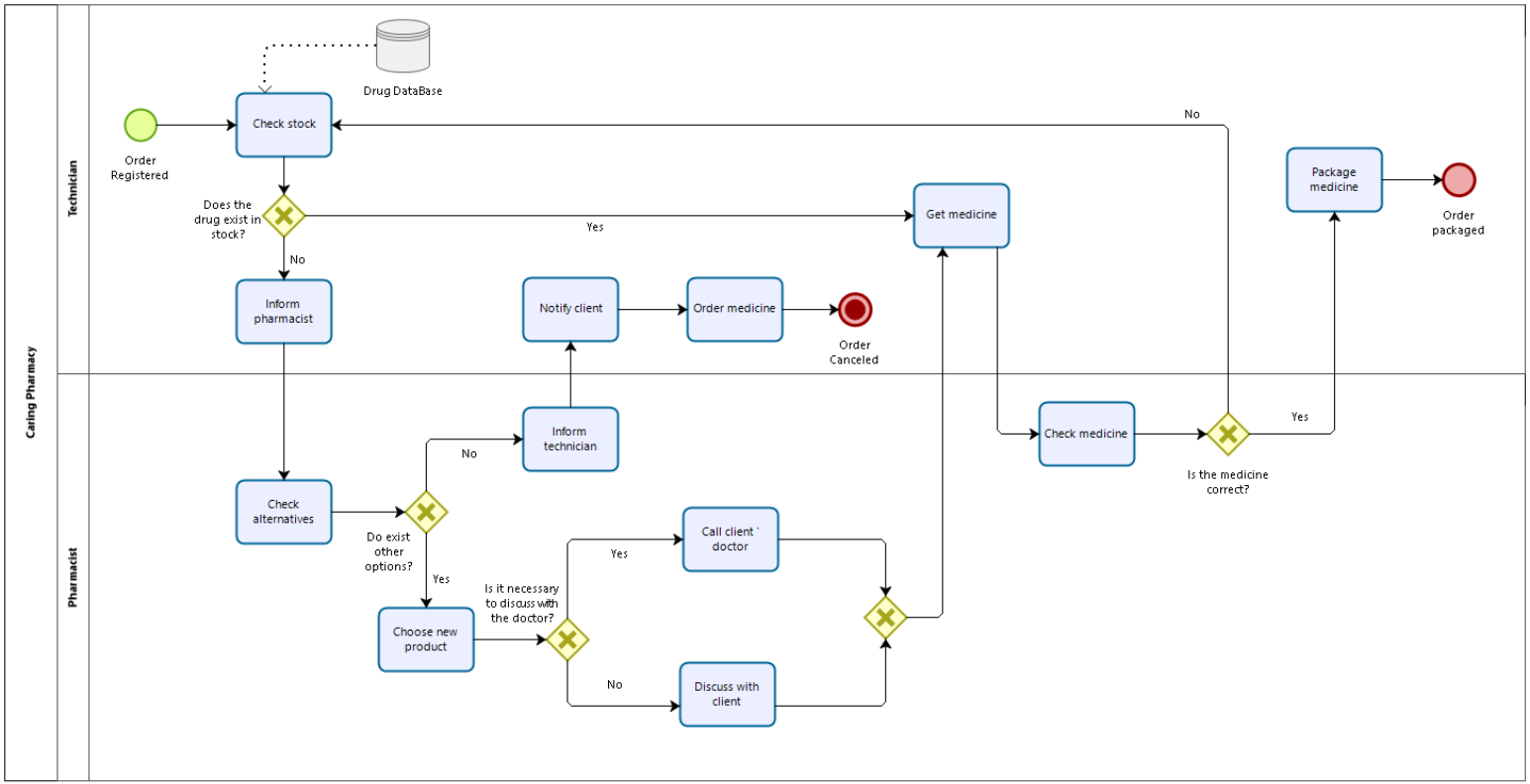
Receive Client



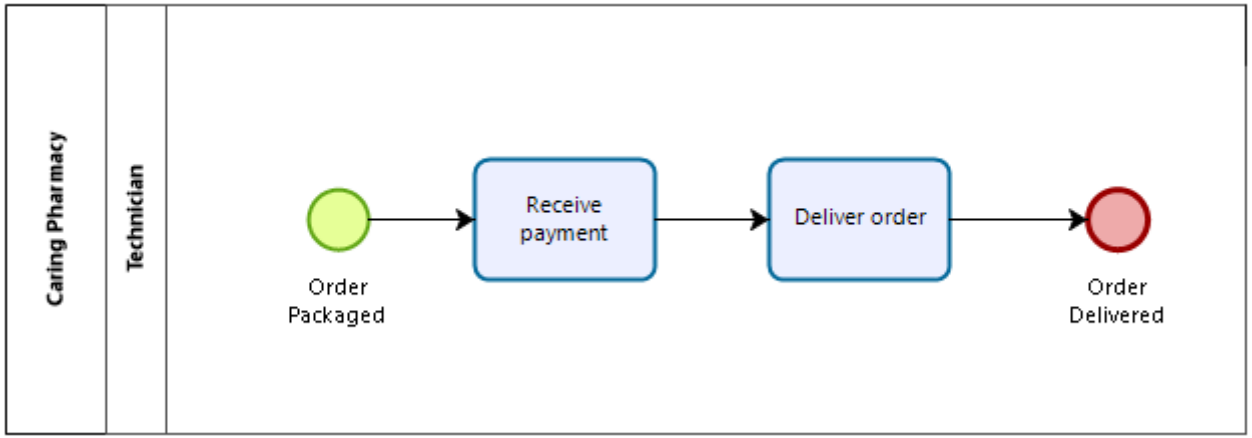
Enter and Check Prescription



Fulfill Order



Deliver and Payment



4

Qualitative Analysis

Qualitative Analysis

01

Value-Added Analysis

02

Waste Analysis

03

Issue Register Analysis

Value-Added Analysis

Enter and Check Prescription

STEPS	PERFORMER	CLASSIFICATION
Enter prescription details	Technician	BVA
Drug Utilization Review (DUR)	System	BVA
Insurance check	System	BVA
Check customer historic	Pharmacist	BVA
Call clients' doctor	Pharmacist	VA
Insert justification in the system	Pharmacist	NVA
Check if drugs can be replaced	Pharmacist	BVA
Discuss situation with doctor	Pharmacist	VA
Inform client that insurance covers all	Pharmacist	VA
Ask client to come another day	Pharmacist	VA

Waste Analysis

Enter and Check Prescription

	TYPE OF WASTE	ACTIVITY
MOVE	Transportation	Insert note in the system. Insert details in DUR
	Motion	Inform client
HOLD	Waiting	Package medicine Call doctor Wait for historic verification Wait for DUR
OVERDO	Defects	Ask client to come in another day, due to doctor error New electronic prescription after calling the doctor

Issue Register Analysis

ISSUE	PRIORITY	DESCRIPTION	DATA AND ASSUMPTIONS	QUALITATIVE IMPACT	QUANTITATIVE IMPACT
Poor control of stock levels	1	When there is no stock so that there is no shortage of medicines when needed. This implies, the client must return in another day.	The medicine is only available 75% of the cases. Besides this, ordering it from supplier takes on average 1.5 minutes.	The image of the company ends up being damaged since the buying process instead of taking a few minutes, takes days. Therefore, the customers can end giving up the purchase.	The profit of the pharmacy decreases once customers give up on the purchase if it is urgent. This will lead them to change pharmacy for a more efficient one and, finally, the time spent on solving previous purchases is a waste since it does not allow an increase of the profit, as new customers are not being served.
Unnecessary repetition of the medicine verification	2	The pharmacist needs to check if the medicine is correct even when it was previously checked.	The medicine is correct 95% of the times and verification take 30 seconds.	It is an inefficient allocation of pharmacist's time, called "Over Processing", once it is considered an unnecessary perfectionism due to the percentage of times that is correct.	The profit of the pharmacy may decrease once customers are losing their time and they might look for another pharmacy more efficient in the future.

5

Quantitative Analysis

Quantitative Analysis

Focus on the process performance measure time

Goal: improve cycle time efficiency

01 Simulation

02 What-If Analysis

Simulation

1. Process Validation

- Ensured everything was synchronized.
- Defined the probabilities for the gateway.
- Defined the number maximum of arrivals (220).

2. Time Analysis

- Start Event: Poisson Distribution
- All Activities: Truncated Normal Distribution

Mean Arrival rate (λ)= Total Arrivals per Day / Total

Time of the Workday (in min) = 220/480= 0,4583(3)

Mean Inter-Arrival Time= 1/ λ= 1/0,4583= 2,182

- Every 2 minutes and 22 seconds a new client enters the pharmacy.

3. Resource Analysis

- This process for each client, involves 1 technician, 1 pharmacist, and 1 system.

Simulation Results

Name	Type	Instances Completed	Instances Started	Min. Time	Max. Time	Avg. Time	Total Time	Total Time Waiting Resource
Caring Pharmacy	Process	140	220	1m 6s	18m 14s	8m 29s	19h 49m 37s	31m 7s

- The average time is 8 minutes and 29 seconds.
- Only 140 out of 220 orders are completed.
- The activity that takes the longest in the company's process is *"Call clients' doctor"* with around 4 minutes.
- The resource utilization is very low.

Resource	Utilization
Pharmacist	35,16%
Technician	33,99%
System	13,38%

What-If Analysis

Six different scenarios were tested:

1. 3 technicians and 2 pharmacists
2. 4 technicians and 1 pharmacist
3. 2 technicians and 4 pharmacists
4. 2 technicians and 3 pharmacists
5. 2 technicians and 2 pharmacists
6. 3 technicians and 3 pharmacists

6

Process Redesign

TO-BE Models

Process Redesign

Transactional Process Redesign Approach

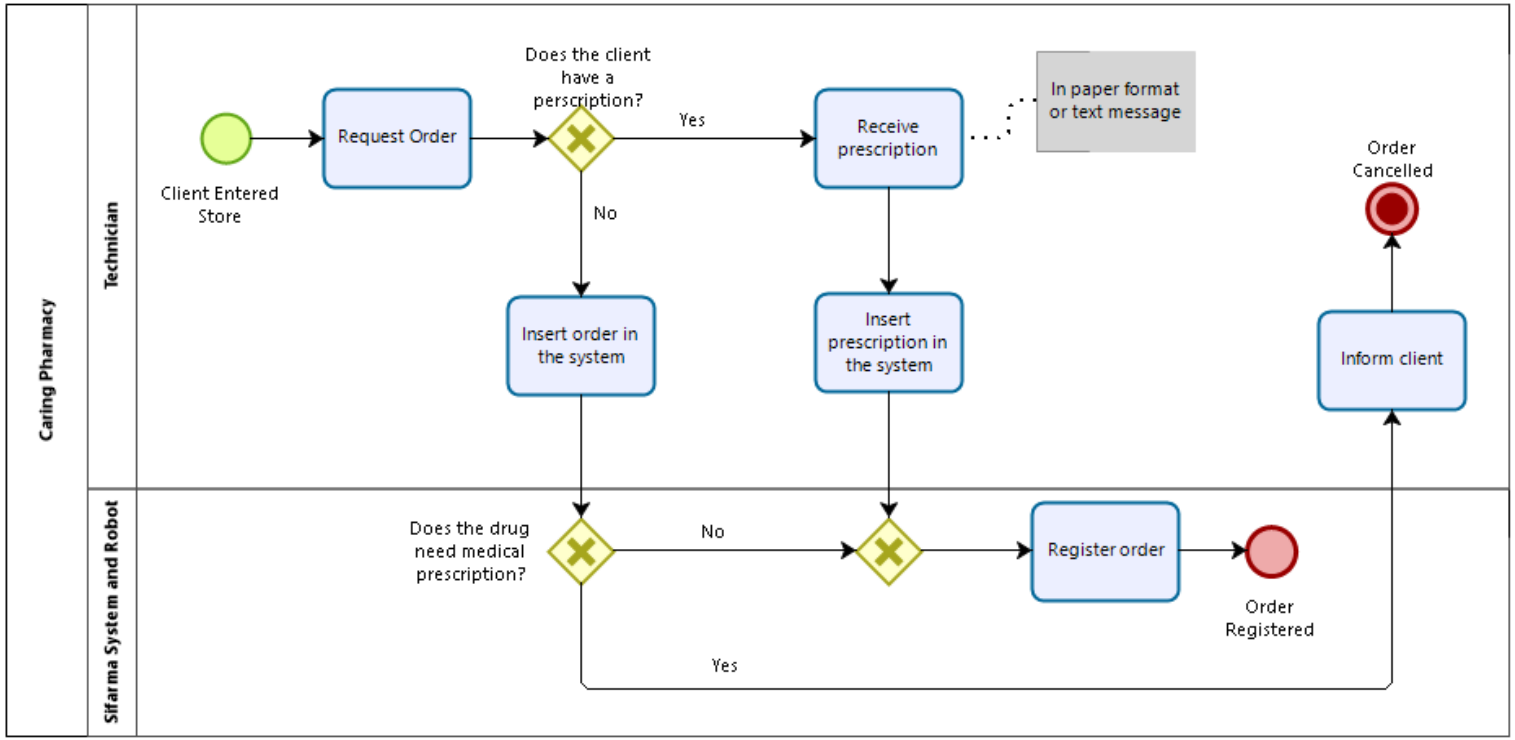
Sifarma

- Information System from Glintt
- Pharmacy Management Software

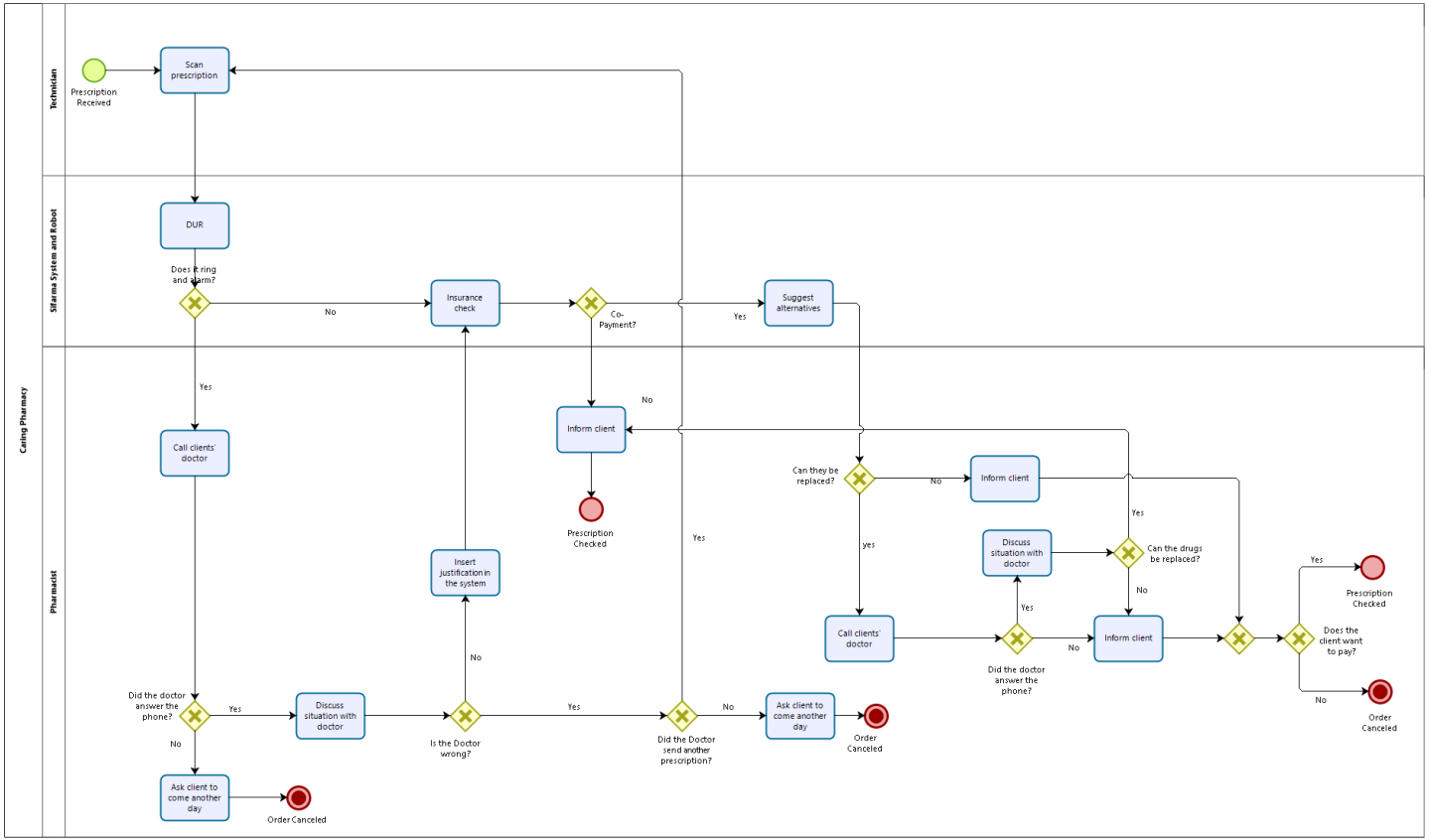
Rowa Vsmart

- This robot prices start at 54 999€.

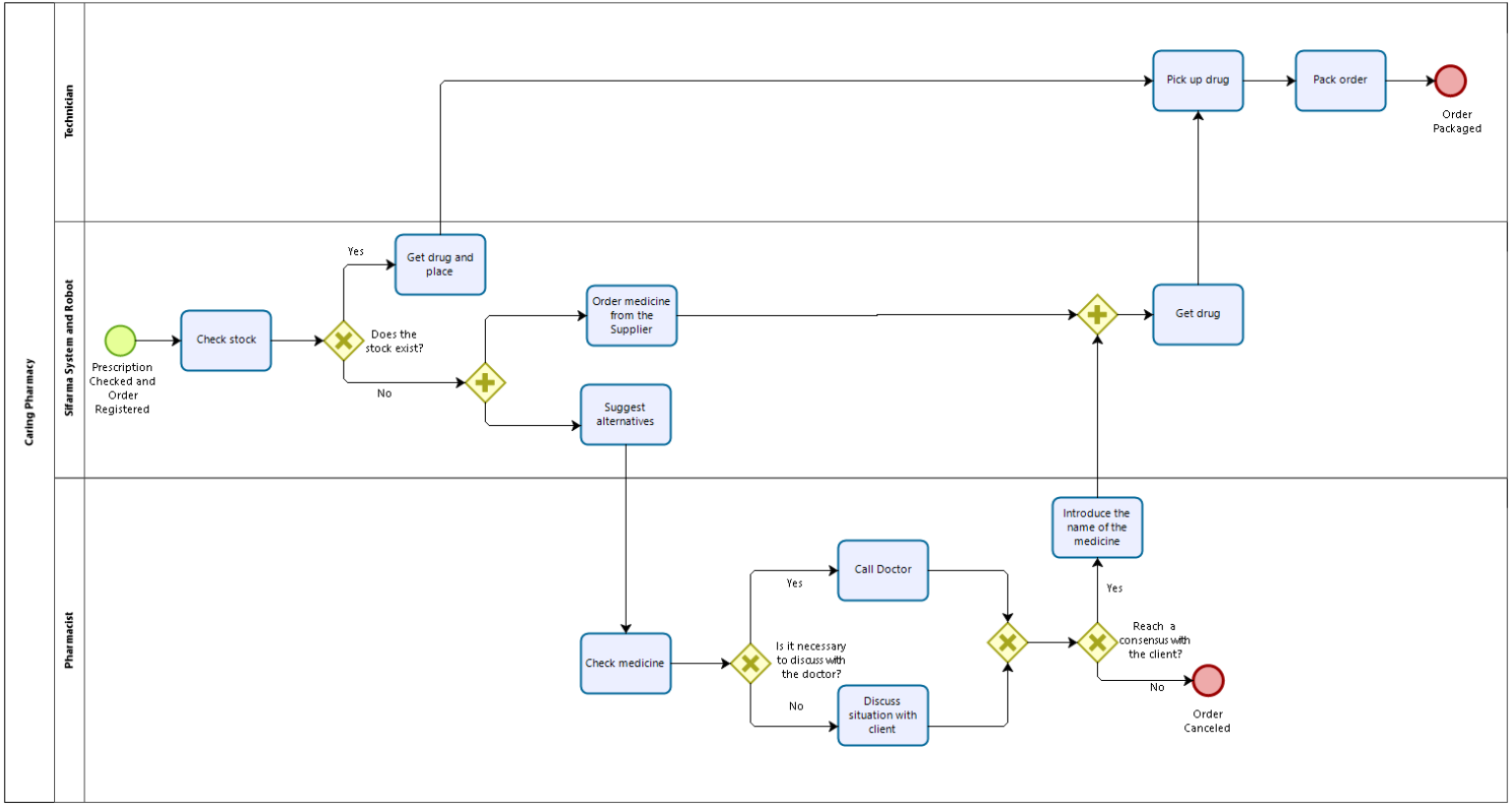
Receive Client



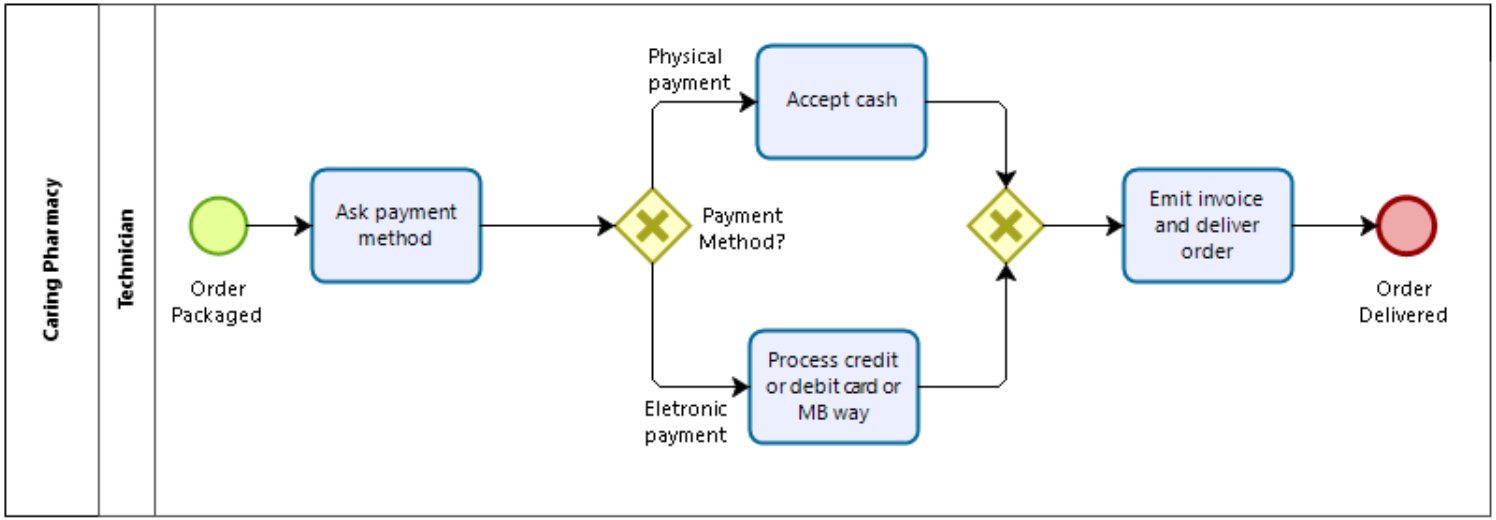
Enter and Check Prescription



Fulfill Order



Deliver and Payment



8

Implementation Plan

Implementation Plan

To perform at its fullest some adjustments need to be made:

- Confirm the most important steps of the order in different stages to avoid errors and mistakes.
- Full integration of the system in the robot.
- Employee training to ensure that the employees take full advantage of the system and robot.
- Make sure that the system and robot are kept updated.
- To better manage the queue, we recommend a ticket queue management system

Thanks!

Do you have any questions?