

USING THE LEAN & SIX SIGMA PRINCIPLES TO IMPROVE THE HEALTH CLAIM PROCESSES OF ASKARI GENERAL INSURANCE COMPANY

By

Risk Management Team AGICO

(Khaled Qayum, Muhammad Hassan Shafiq, Syed Uzair Gilani)

Preamble:

It is extremely important for insurance companies to use efficient business processes / operational models. Failure to do so will result in high costs, increased **Turn around Times** (TAT), and also, have a negative impact on the Customer Satisfaction. Askari General Insurance Company embarked upon a plan to redesign the internal Business Process and improve the efficiency of the Operational Model. This Case study covers how Business Processes were redesigned for an improved operational efficiency.

The techniques / approach used has been borrowed from Industrial Management normally considered in the domain of Manufacturing Engineering. However, the approach used for this case is universal in nature and can be used successfully in other business areas of Service Industry like Insurance Industry.

Problem Statement:

Askari General Insurance Company (AGICO) is one of the major companies providing a variety of insurance covers. It is rated AA- and has branches in major cities of Pakistan. One of the major part of the business portfolio is the health insurance Coverage whereby insurance cover is provided to various organizations. It was observed that there was a need to redesign the existing Health Claim Processing System leading to enhanced operating efficiency.

Askari General Insurance has been using traditional method of Claims Processing, which was based on extensive use of Paper and Files. The claims were received in form of paper files and would go to various desks, until all of the processing would be completed. This raised a variety of issues such as delay in processing, stacking of Heaps of files all over the works space and even floor, more than desired processing time and finally perpetual shortage of storage space for files. Additionally, finding or locating cases / files once processed and stored away were near to impossible, if God forbid a need arose.

Health Claims system is handling two types of claims i.e. Panel claims (Collective) and Reimbursement (Individual) claims to cover the insurance. Whereby AGICO provides insurance cover to a lot of businesses.

Assignment & Procedure:

The task of Business Process redesign and increasing the Operations Model efficiency of Health Claims Processing was assigned to the “Risk Management” department. The department is manned by two industrial engineers and is headed by the department head, who also is an industrial engineer by training. Industrial Engineering is the best suited for such kind of tasks, as the techniques which for such an undertaking fall within the realm of Industrial Engineering profession. The techniques and methodologies such as Lean and six sigma which had their birth on the shop floors of Manufacturing industries can also be applied to the Service Industry, in for improving the operational efficiencies. The “team” opted to use Lean & Six Sigma methodologies to study and improve the existing processes.

The Team understood that the Process efficiency has taken the world towards new technological heights. Whether it is manufacturing or services, both are continuously striving to improve process. Such technological changes are helping provide better services to customers. While on the other side “No improvement” means “No survival” because people want more in less time and competition is increasing day by day.

A similar approach was adopted to change the old fashioned claim processing system of AGICO to improve the response time, competency and change the process to paperless from being dependent on paper & files. For this purpose, lean/ 6σ principles were adopted from beginning to end. This required the following step to be undertaken:

- Identify Problems
- Map the Value Stream/Reasons of problem (Analysis)
- Flow Creation
- Establish the Solution
- Implementation
- Seeking Perfection

Details explanation about what was the actual problem and how it is remedied are as under:

Causes of Problem (Analysis):

DMAIC a technique of 6 Sigma was adopted to analyze and find the required relation. DMAIC is the abbreviation of the following:

- Define
- Measure

- Analyze
- Improve
- control

At this stage, first three steps of DMAIC were used i.e. Define, Measure, Analyze

Define:

Define phase covers understanding the problem and the existing process. As the problem and targets are already defined (Problem Statement) so a need was developed to understand the existing process. After a detailed review mentioned (Figure-1) flow was analyzed at Health Claims processing system. Following stages are part of the process:

- Receiving of claims from Client
- Data entry and intimation (Claim information entered by Data Entry persons)
- Marking by Pharmacists (Decision, what amount to pay made by Pharmacists)
- Verification of Payable Amount (Auditor, Verifier, HOD)
- Settlement Generations (By Data Entry Persons)
- Cheque Making at accounts (By Accounts Manager)
- Verification by Accounts Department (By Verifier & HOD)
- Cheque dispatching (By Health Claim Dedicated person)

Above mentioned stages depict the forward flow. A backward flow was also observed in case of objection or rejection (Client Coordination). It is also necessary to mention that at that time two lines was operating, one line was handling individual claims, and, the other line was handling collective claims of hospitals i.e. Reimbursement line and Panel line respectively. However, the process was same. **Reimbursement Claims:** Claims that came in individual form from client for reimbursement of money. **Panel Claims:** Claims that came from a hospital, in which insured person went to have cash less treatment.

Measure:

Any work activity can be broken down in basic components, which are:

- Transportation ⇨
- Operation ○
- Inspection □
- Delay D
- Storage ▽

Among these, only Operation(○) adds value. Hence the approach is to minimize/eliminate the others including Transportation(⇨), Inspection(□), Delay(D) & Storage(▽). Numbers of such activities for mentioned process are described as under:

Description	Symbol	Present No.
Transportations	⇨	17
Operations	○	5
Inspections	□	6
Delays	D	18
Storages	▽	0

After analyzing the type of activities present in the system, current performance of the system is being measured.

To measure the performance Work Sampling and Time Study method was adopted. After the time study of different work stations, a simulation of exiting system was performed using ARENA Simulation Software to assess the performance. Results of ARENA Simulation clearly shows that the resources were under-performing and Non-Value Added activities have large percentage as compare to Value-Adding activities. To be exact there were 38% Value-Added activities and 68% Non-Value Added activities. While on the other hand it was clear that lines were not balanced.

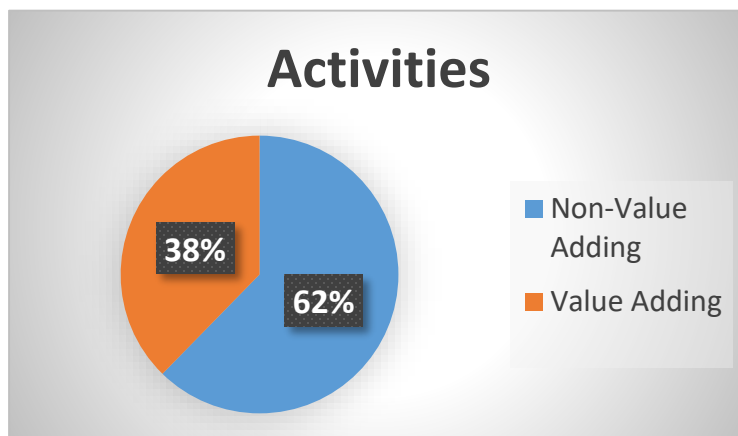


Figure 2: Value Adding and Non-Value adding Activities

Following table shows the Simulation results which includes type of resources, average usage of the resources, work balance between resources & number processed during a single run of Simulation. While table below is showing value added time of 2 lines.

Resource	Average Usage	Balance	Maximum Value Processed
Data Entry 1	0.0523	Insufficient	26.000
Client Coordination	0.1268	Insufficient	76.000
Verifier Panel	0.067	Insufficient	9.000
HOD	0.082	Insufficient	11.000
Marker 1	0.3961	Insufficient	14.000
Verifier Reimburse	0.1219	Insufficient	12.000
Marker 2	0.4317	Insufficient	15.000
Data Entry 2	0.1088	Insufficient	76.000
Data Entry 3	0.0666	Insufficient	26.000
Data Entry 3	0.1119	Insufficient	76.000
Data Entry 4	0.0583	Insufficient	25.000
Data Entry 5	0.051	Insufficient	25.000
Data Entry 6	0.065	Insufficient	26.000
Marker 1	0.3735	Insufficient	14.000

Time	
VA Time	Average
Panel 1	0.3754
Reimb 2	0.1586

Figure 3: Simulation Results

The above mentioned table shows the results of simulation which is being run for single shift (8 hours). Results indicate that resources are performing very little amount of Value-Adding work i.e. the maximum utilization of a single resource is 43.17% and remaining resources utilizations are less than this value. It means that resources are doing more Non-Value Adding activities or sitting idle. Table also indicates that the work content is not properly distributed as the “Balance column” is showing “insufficient mark” against every resource. While the last column shows the number of claims files processed by each resource during a single shift.

The “Time’s Table” is showing average value of Value-Added time i.e. 37.54% for Panel line and 15.98% for Reimbursement line. It means that for Panel line & Reimbursement line, resources as combine consuming 62.64% and 84.02% of total time in Non-Value Adding activities or sitting idle for Panel line and Reimbursement line respectively.

In the Figure-4 and Figure-5, The Colored boxes/activities showing the Non-Value adding activities which needed to be modified/replaced/removed or mode of handling should be improved.

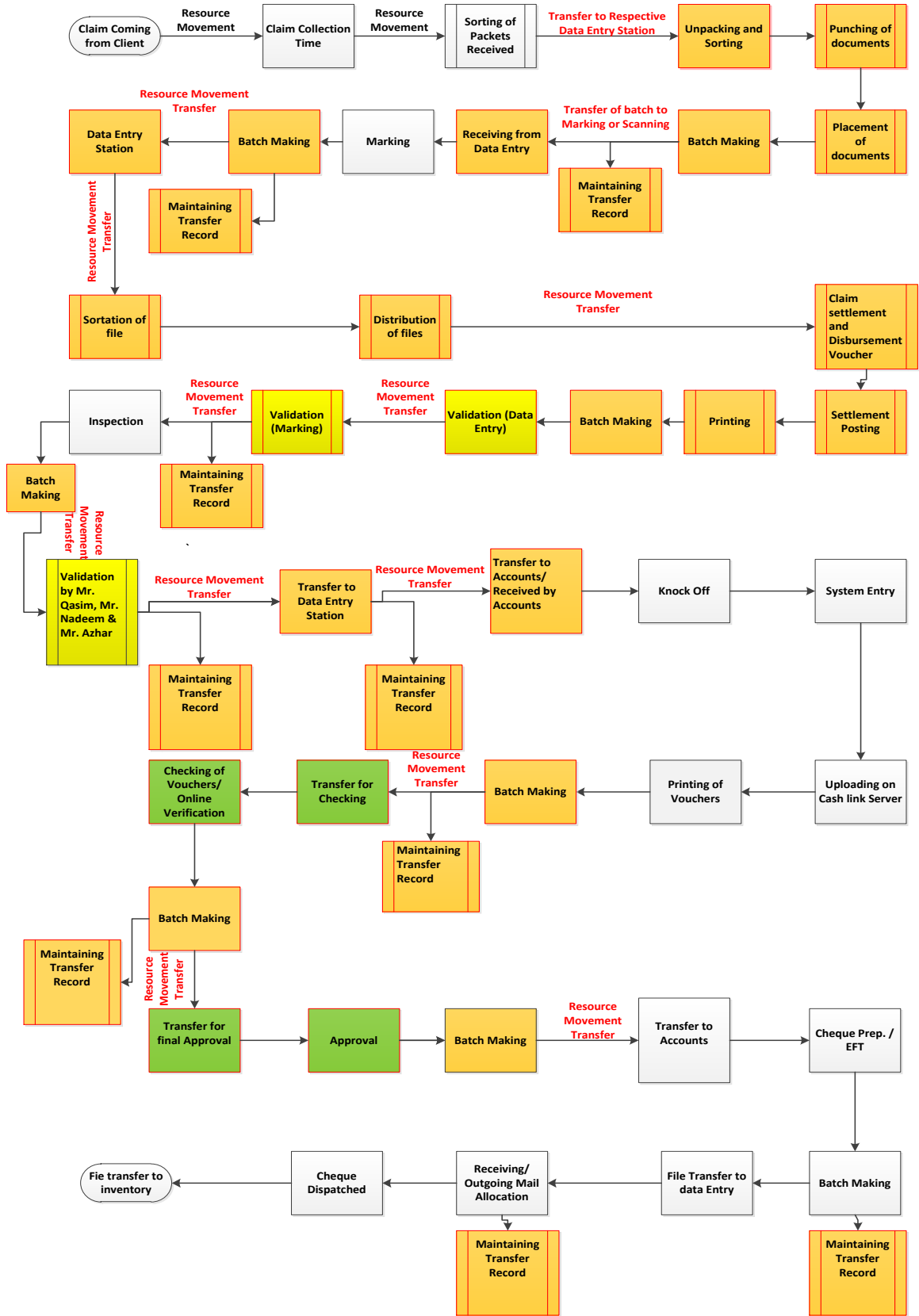


Figure 4: Value and Non-Value adding activities in Forward flow

Considering the simulation, the following figure shows that queues were establishing at different work station and lots of pending work.

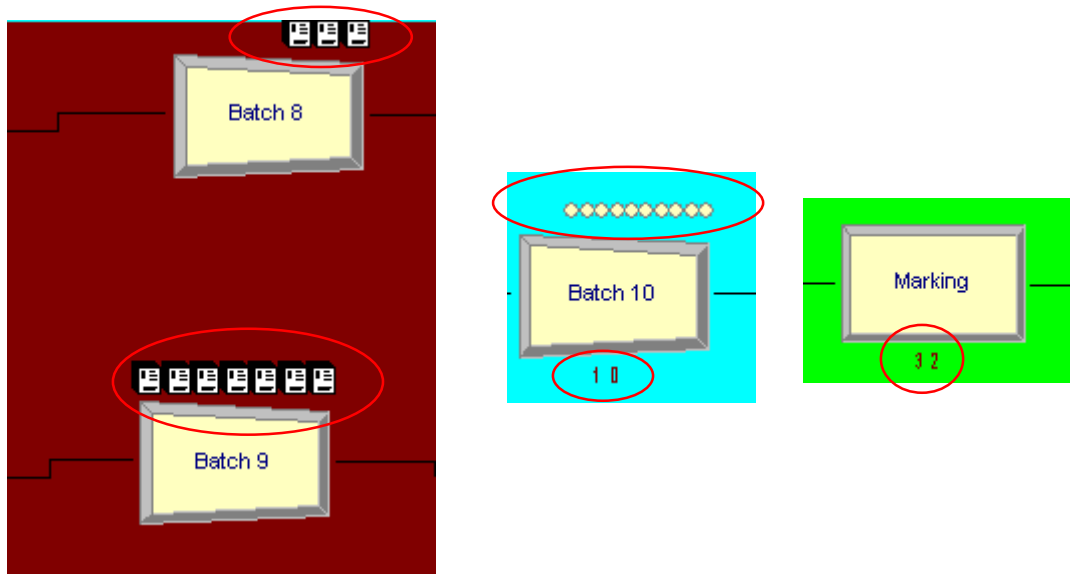


Figure 6: Simulation showing queues at different stations

Analyze:

In this step, situation was analyzed. It involves the analysis of the process for issues and root causes. Here, pervious data was collected and then combined with the outcome of the previous phase to identify the following root causes:

- Resource imbalance between two lines:

Sr#	Description	Panel	Re-imburement
1	Percent number of claims	65 %	35%
2	Dedicated data entry resources	4	6
3	Average Number of claims per day	227	123
4	Number of Claims per person	75	25

- High number of objection cases i.e. 25% (18% reimbursement line 7% panel line) for both lines which increases the rework

- Inefficient Client Coordination System
- Lack of Process Standardization
- Over emphasis of file management
- Lack of Service Equality to all Clients
- No parameters on resource efficiency calculations & KPI
- High Repetition of tasks
- Non-green system i.e. heaps of files were observed here and there

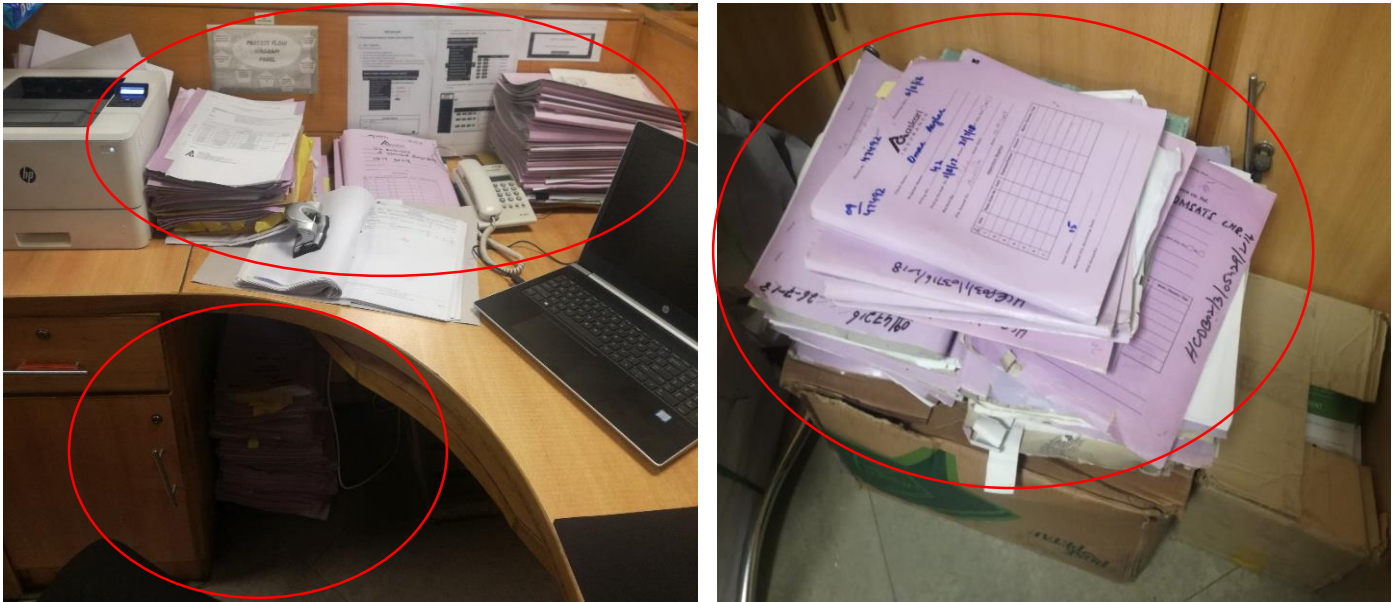


Figure 7: Heaps of files

Flow Creation:

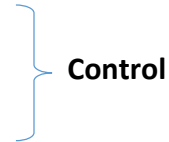
After the analysis, problem was easy to comprehend. A solution was needed to make the process efficient. It was observed that if manual handling was removed by automating it, in such a way that user can perform any task with a single click without leaving his/her station along with standardization of work then most of problems can be resolved. So, a software was needed which can integrate with current system and include all of above.

Following flow was created to improve the process: (which covers “Improve” and “control” of DMAIC)

- Production line approach in services
- Creation of flow charts & simulation for new lines
- Analysis of lines
- Creation of soft tool

} **Improve (Establish the solution)**

- Implementation
 - ❖ Pilot run and Orientation
 - ❖ Full Execution



Solution:

Production Line Approach in Services:

To improve the mentioned process a production line improvement approach has been followed in which following techniques were considered:

- ❖ Work Simplification
- ❖ Standardization of product & service so that variation between one unit and the next is minimized.
- ❖ Operator decision making to be minimized.
- ❖ Control of process and review of variation/faults
- ❖ The idea is to replace the high-cost and erratic elegance of the artisan with the low-cost, predictable munificence of the manufacturer by using hard and soft technologies.

The above mentioned things are applicable in flexible manufacturing system but using them in services give us a term flexible service system i.e. pure automation in service industry.

Creation of Flow Charts & Simulation for New Lines:

It was observed that the main area of concerns is health claims department. Accounts departments had negligible hurdles. So, two models were proposed (based on simulation results) which are going to resolve the Health Claims problem:

Proposed Model 1:

In the first proposed model, two types of claims lines were made (i.e. panel and reimbursement) in such a way that it changes the manual handling (Scanning the claims at initial level and making them soft instead of hard) towards on click handling by improving the lead time and user efficiency. The PM-1 is as under:

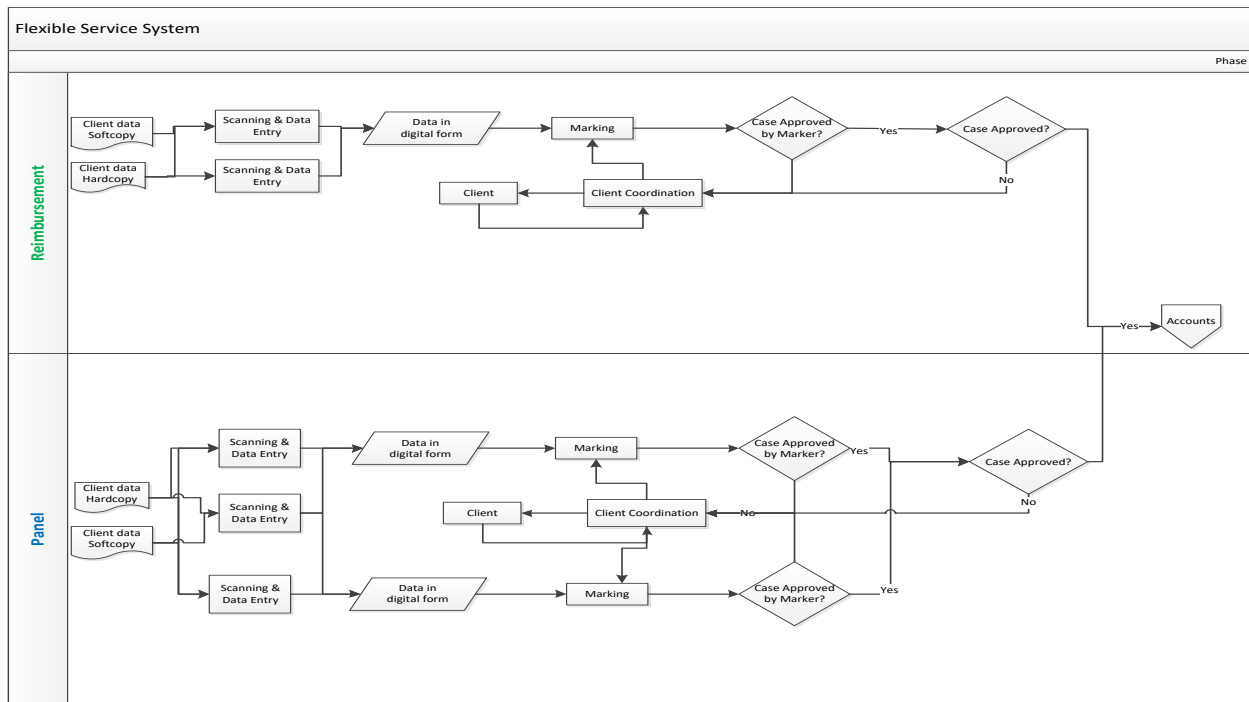


Figure 8: PM-1

Proposed Model 2:

In the 2nd proposed model a slight difference was made by separating the Marking (as it is the main value adding section) section for object able cases which was one station for both lines. The PM-2 is as under:

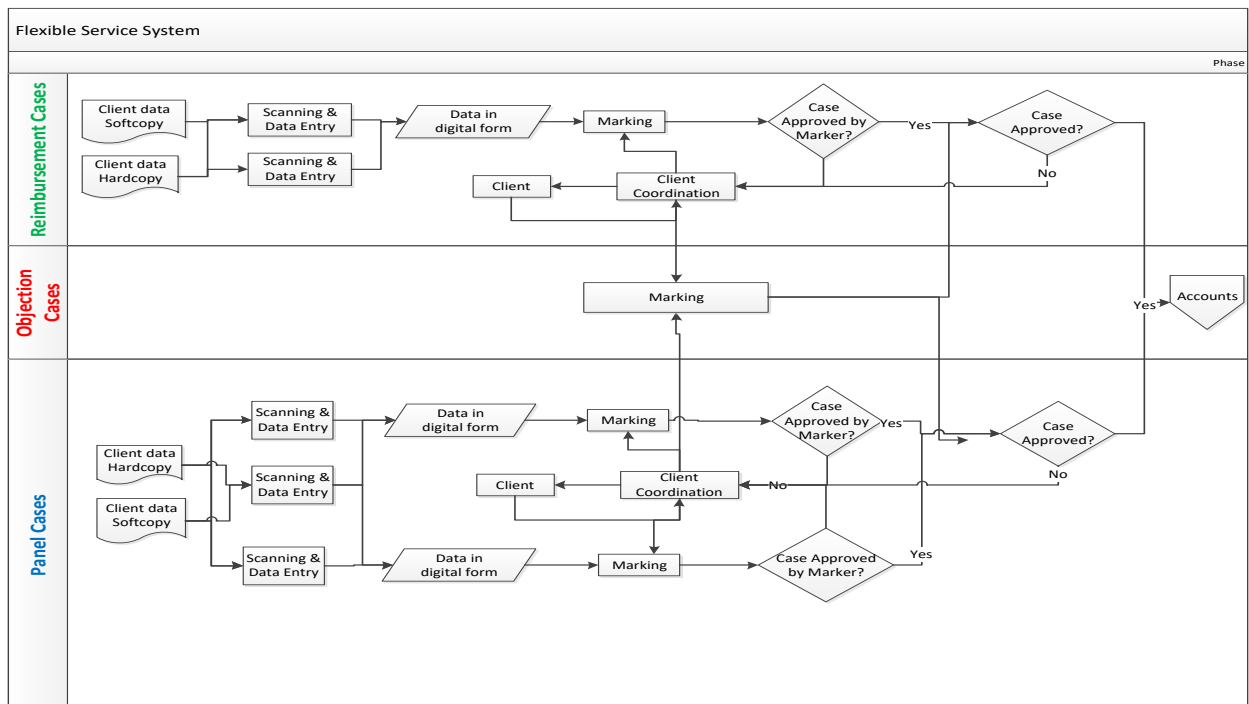


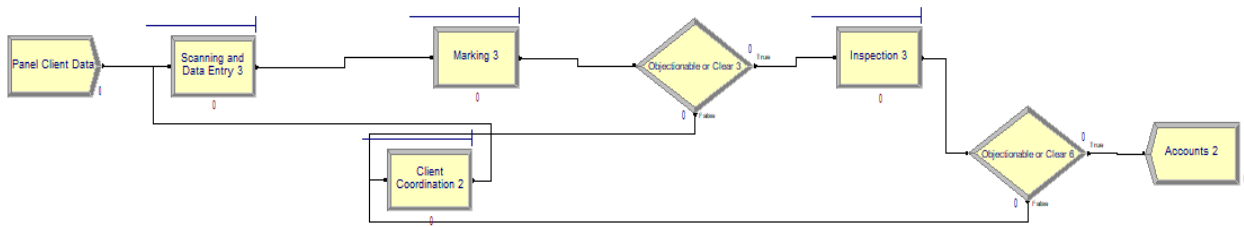
Figure 9: PM-2

The comparison of process activities for present line and improved line is as under:

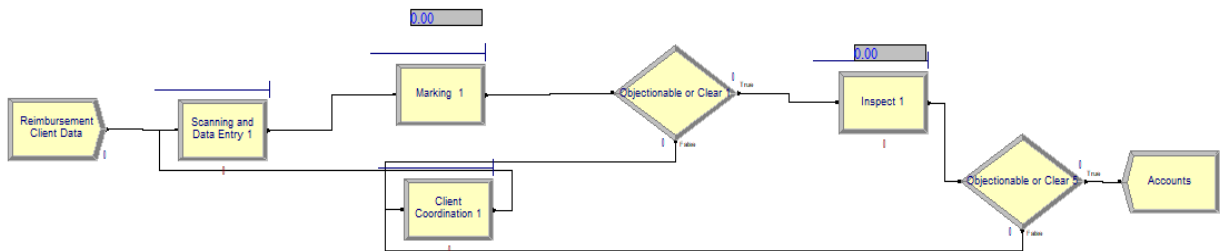
Symbol	Description	Present No.	Proposed No.
⇒	Transportations	17	2
○	Operations	5	4
□	Inspections	6	5
D	Delays	18	0
▽	Storages	0	0

Simulation:

The above mentioned system were then analyzed on ARENA simulation software to assess the efficiency of the proposed system w.r.t. exiting system. Analysis of the lines is given in next section.



Panel



Reimbursement

Figure 10: Simulation of Proposed Models

Analysis of lines:

Proposed model simulation results and exiting model results were compared on different parameters and following results were obtained:

Parameters	Results		
	Existing	Proposed Model 1	Proposed Model 2
Reimbursement Claims/Days	123	159	238
Panel – Claims/Days	227	319	398
Claims / Day	350	478	636
Free Resource	-	3	2

Table 1: Financial Parameters Comparison

Parameters	Existing	Proposed 1	Proposed 2
Service Model	Random/Biased	FIFO	FIFO
Value Added Activities %	38%	71%	73%
Data Retrieval	Store Room	Data Base	Data Base
Sustainability	Poor	Good	Excellent

Table 2: Efficiency Parameter Comparison

As can be readily seen the proposed approach/method would provide better/efficient results.

A **notable cost** will be saved after the execution of process.

A breakeven point is also calculated in term of new equipment cost which came around 6-8 month after the new process becomes operational.

Creation of software:

After assessing all the possible outcomes, meetings were held with the MIS department to develop software for developing the tasks. The software had to have following attributes:

- Systems' overview in one view
- Efficiency monitoring
- Easy information tacking
- One click transfer of under processed claim (automated transfer)
- Under process, pending work and processed information
- A user friendly interface
- Can integrate with existing Insurance Management System (IMS)

To develop the software, individual and details meetings were conducted from all persons (IT, Accounts, Heath claims) this software as easy as possible. A time period of 4 months was taken to develop the software.

The software was named "Claim Repository and Processing systems" abbreviated as CRPS. A detail user guide was also created to make the user more familiar with this software.

Section Results:

Based on the analysis, it is recommended that FSS2 model should be implemented to gain the benefits of its flexibility, fast turnaround time, low cost, better controls and high resource efficiency.

Implementation:

❖ Pilot Run and Orientation

It's a common practice that before replacing the existing system the new system should be run on Pilot. A similarly approach was adopted in which system was test run multiple times and in each run some problems were observed which were solved timely.

❖ Full Execution

At initial stage of the full execution, claims of 3-4 clients was run on the created system which are working really good till now. Now a plan is under way to run all the health claims on new system which will be completed within a month.



Figure 11: Condition of a work station of health claims after new system implementation i.e. paper less environment

Conclusion:

It is clear from above mentioned results that the new process is efficient in all ways from old process but things cannot be stopped here, process have to be continuously improve as there is lot of scope remains. Following results are achieved by implementing the process:

- Significant increase in capacity
- Quick Turn Around Time
- Notable Savings
- Better services
- Removal of manual handling

A second version of new developed software is in planning phase because currently it is working in integration with IMS (Insurance Management Software). So, both software are running simultaneously. In next version there will only be one software i.e. CRPS which will include the IMS information required by the user.

Considering the improvements, as the average TAT before implementation is 4.50 minute which is reduced to 2.25 minute leading to the increased efficiency of 45% (keeping in view the error/system malfunction chances).