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Re-engineering and Technology Development on Reference Sample of Business Process (Case Study on Health Laboratory Service Company)

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Abstract

In the health laboratory companies a good service quality is the main key that should be maintained. Poor service quality would have an impact in reducing customer trust and also would have an impact on company's incomes. One of issues which happened in health laboratory companies particularly in referral sample services is inefficient times when doing the existing work which causing longer of waiting times. This research intend to identified the waste, revealed the causative factors and done the business process re-engineering which contained in reference sample of business process in health laboratory companies. This type of research were included in quantitative research with a descriptive - exploratory methods. The Data collection and analysis using primary and secondary data with quantitative data analysis. The results showed that before the business process reengineering was done, a lead time and process time needed 825 minutes, but after the repairs has done through identified the waste and determining factors which causing waste by using the BPR method, than the lead time and process time were reduced until 370 minutes, which shown there has a significant decreased amounted to 450 minutes or 54%.

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INTRODUCTION

One of the competence indicators which a service company need the most in this era of 4.0 is a strategy that capable to transform and innovate the services. In order to surviving the service activities in a company, these service companies need to organized the plan which reflected on its business processes. The healthcare industry is required to adapt to the use of technology which supports the digitalization process. This could be a challenge for the health care industry, specifically in one of the largest clinical health laboratory service company in Indonesia in an efforts to improve the innovation in examination services, one of referral laboratory services.

Referral Laboratory Services has focused on customer referral service systems. RLS (referral laboratory services) customers were included in hospitals and clinics that wish to refer the patients as well as samples. The RLS division continues to make service improvements in order to create customer satisfaction and loyalty to the laboratory company. Nevertheless, based on the data that authors gathered, it shows that if this assessment results of the target revenue achievement from the RLS division in 2019 were still below the target, which is only 90.8%.

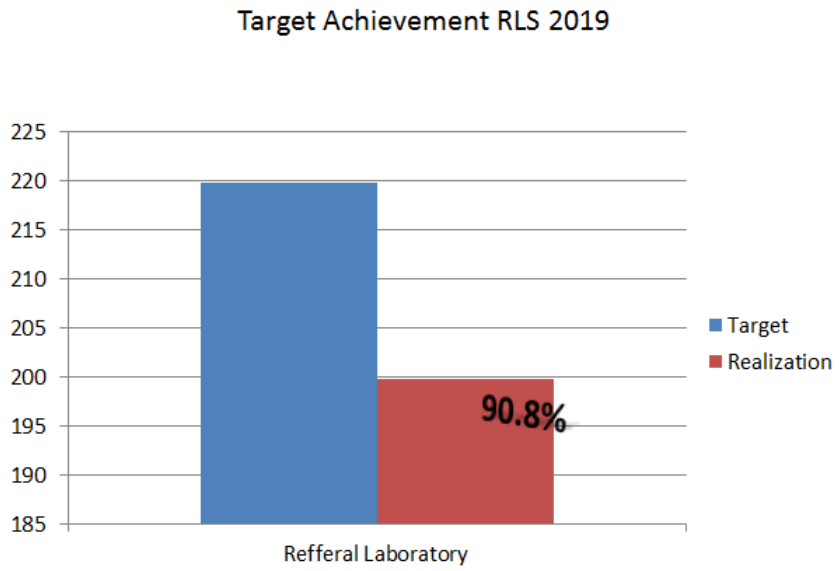

Figure 1: Graph of the RLS Division's Achievement Target during period of Jan-Dec 2019

To discover the reason for these unachieved revenue targets, the authors conducted a survey to customers regarding referral laboratory services. From these survey results, it was found that there is a huge difference in the service on time delivery of results as its promised with satisfaction index of 79.32 and an index of interest of 85.64 with a gap of -6.33. In compliance with these survey results, the assessment data report on the timeliness of submitting laboratory results is also delayed almost every month.

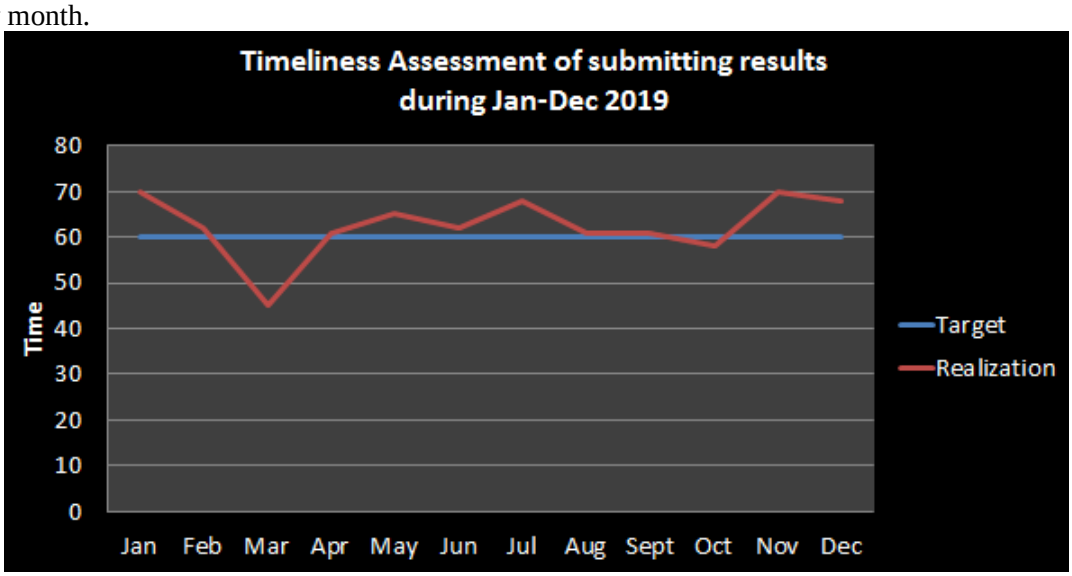

Figure 2: Evaluation of the Submission Time of Laboratory Results

To improve the efficiency of the process, the authors intend to conduct research with Reengineering using BPR (Business Process Reenginering method, with hope to creates a new business process design and bring a good transformation about better changes in the health laboratory service company.

LITERATURE REVIEW

Business Process

According to Indrajit & Djokopranoto (2002:8) business processes are a number of activities which change a number of inputs into a number of outputs (goods and services) for other people or

processes that use people and tools. A good business process should have strong goals namely making it effective, efficient and easier to those who processes in it.

Waste in Service

According to Gaspersz (2007), there are two main components of waste, namely type one waste and type two waste. Type one waste is a work activity that does not create an additional value in operation process along with the stream value, but this activity is currently unavoidable for various reasons. Type two waste is an activity that does not create an additional value and could be eliminated instantly.

Value Stream Mapping

Value Stream Mapping (VSM) is mapping activities between activities which have additional value and activities which do not have additional value. Keyte & Locher (2004) explained that the achievement of VSM, which has been using traditional manufacturing arrangements so far could be applied to service arrangements such as administrative processes. Analysis of the effectiveness and efficiency of the production process is carried out by determining value added, non value added but necessary and non value added activities.

5 Why Analysis

Five whys analysis is a basic structural technique in solving problems. The three important parts of this method are complete and accurate problems, answer questions honestly and process to get the root of the problem in order to sort of problem (Susanto, et al., 2018).

Fishbone Chart

A fishbone diagram is a diagram that used to identify various potential causes of an effect or problem and analyze those problem through a brainstorming session. The problems would be solved into a number of related categories, including humans, materials, machines, procedures, policies and so on (Tague, 2005).

Business Process Reengineering

Hammer & Champy (1993) say that business process reengineering is a fundamental rethinking and radical re-design of a business process to achieve huge impact to the result in order to get significant improvements or performance improvements in business processes.

Previous Research

Several previous research had been conducted by Hendro, et al. (2017) which found if the business process reengineering method has provided an overview of BPR implementation in improving business processes and identifying process delays or non-value additional activities. Wisayani (2014) shows that by these BPR method could determine the causes of lack of efficiency in service company business processes, while Agushinta, et al. (2015) found that business process reengineering (BPR) were helped the health service companies such as clinical laboratories, particularly in customer service and procurement division in an efforts to increasing the efficiency and effectiveness. Andrea & Santoso (2020) found that BPR with the consolidated method needed to be applied through identification of the business process.

METHODOLOGY

This research aims to identify the waste in the reference sample process and revealed the causes of the waste in the process, as well as provide some suggestions for improvements to minimize the waste in the reference sample process. So this research was included in the type of quantitative research with an experimental and exploratory descriptive method. The research dependent variable was the reference sample process, while the independent variable is the identification of waste and the factors which causing that (waste). The source of data in this research came from primary data

through observation, interviews and FGD, while secondary data came from those prior research, online sources and books reference.

Data collection techniques that used in this research were direct observation, interviews, group discussions and also document review. The research population was the service process found in health laboratory service companies and the samples that will be taken for research are a series of processes that occur in reference sample services at health laboratory service companies. The research methodology was carried out in stages according to the BPR Hammer concept, namely understanding the ongoing process, identifying weak points in existing business processes, investigating the alternative redesigns, looking for opportunities to use information technology, creating new efficient process models and create conclusions and also suggestions.

RESULT AND DISCUSSION

Business Process Identification

Identification from referral sample process was done by mapping the processes involved in the referral laboratory services process or the referral sample process. The results from the identification of business processes in this research are as follows:

Table 1: Mapping of Refferal Laboratory Services Process Requirements

No.	Reference Sample Process	Complaint	Need
1.	Sample Order Process	Took a long time to wait for a response from officers by phone to order the samples.	Process simplification
2.	Sample Order Process	Laboratory service officer who received the referral sample orders need to contact the courier first by phone so the samples would soon picked up and sometimes the courier did not directly respond to information from the service team.	Process improvement
3.	Result Handling Process	The service department need to check the list into the system from the print out results issued by the operations department. This process was indicates that the results have been received by the service department. Which this process is not carried out directly because service officers also have to accept patients or serve the patients who want to carry out examinations.	Process improvement
4.	Delivery Process or Submission of Results	Couriers do not always stand by at the outlet, so the results which are ready to be sent have to wait until the courier comes to the outlet and picking up.	Process improvement

Business Process Mapping

According to the mapping results on the existing reference sample of business process activities, almost every activity has no added value in each process. There are only three activities which provide added value, namely the sample process and sample preparation processes.

Drawing the Current Stream Mapping of Business Processes

According to Current Stream Mapping observations result, the process would starts with sample orders and sample pick-up requests which accepted by the service officer for verification of the request after that it is continued with the registration process carried out by the service officer and sample preparation is carried out. After the sample is done than it is continued to the result handling process and than the results are delivered to the customer.

Waste Analysis

In the type of waiting, it is found in the activity of the customer who has to wait for a response from the laboratory staff. Besides, the type of activity which causes waiting is the finished result is not sent directly to the customer due to limited staff and the existence of a double job desk. Other than that, it was also found if there has an over processing in the result handling process in which the activity carried out was that the service officer had to verify the return results, which had already been done by the operations department, this happened an excess of the process carried out in the referral sample of business process.

5 Why Analysis

Based on the 5 why identification result, it could be interpreted that the root cause which occurs in the type of waste, especially in the waiting category, was due to the unavailability of an online support system. Besides, in the over processing category, it could be stated that there is no special section that could handles the result handling process. Therefore, utilization of technology and innovation are required to increase the added value in the supply chain management (Santoso, et al, 2020).

Fishbone Chart

Based on the data collection and process steps which have been carried out previously it could be identified the deficiencies in existing business processes. This identification was done based on complaints from external customers, than overall observations were made on reference sample services including process, people, environment, material and equipment. The problem which occur in this process based on the source of customer complaints which could be described in the fishbone diagram below.

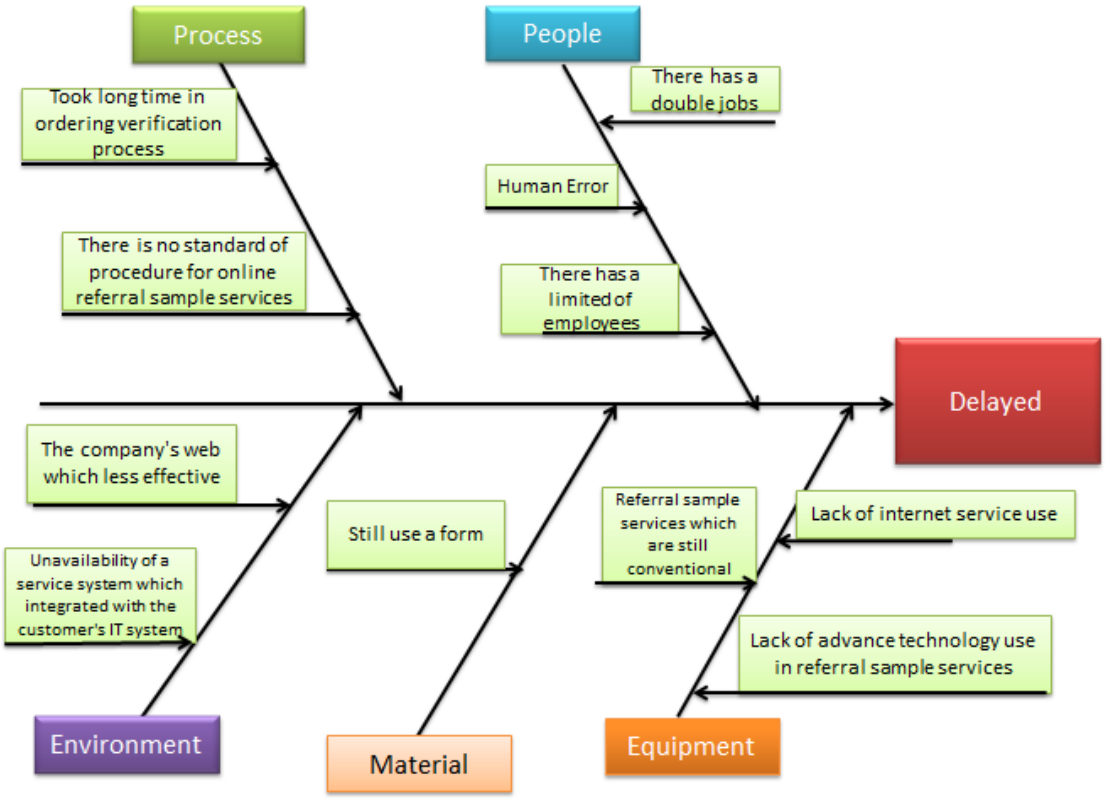

Figure 3: Fishbone Diagram

Comparison of Existing Business Processes and Proposed Business Processes

Overall comparisons of existing business processes and proposed business processes which could be seen in the table below.

Table 2: Comparison of Existing Business Processes and Proposed Business Processes

No	Category	Existing	Process Actors	Proposed Improvement
1	Time	Ordering sample pick up	Hospital/Clinical Customers	A hub system is made between the laboratory system and the hospital / HIS system, so the customers do not need to call by telephone to order sample pick-up orders.
2	Process Efficiency	Received a request of referral sample/verification of pick up request	Service Section and courier	With there is a service link system later so there is no need to contact the courier to notify that there is a request for sample pick-up to the customer, so the notification would enter the system where the courier could see the notification.
3	Process Efficiency	Input the patient data and type of examination/registration of sample reference data	Service Section	Services do not need to re-register data and types of examinations, with a direct customer link system that will input their patient data and the type of examination which referred to.
4	Facilities	Sample preparation process	Operation	With the customer Link system it could monitorized the sample stages in the process.
5	Process Efficiency	Result handling process	Service Section	Through the Link system, this process would be erased or eliminated, so the results which have been issued and validated by the operation department will be sent directly through the Link system.
6	Time	Result delivery process	Courier	In the courier link system is not rushed by time to delivery the results, especially for urgent results.

Using the Opportunities through Information Technology

Therefore the proposed process flow by using the information technology systems is expected to accelerate the waiting process and were reduce the customer complaints (Putri & Santoso, 2020). Where in this verification process, the result of handling process is to eliminated in order to speed up the waiting time and likewise with the delivery result process is not eliminated but improved by sending results which could be accessed online by customers and expected to reduce waiting times and customer complaints.

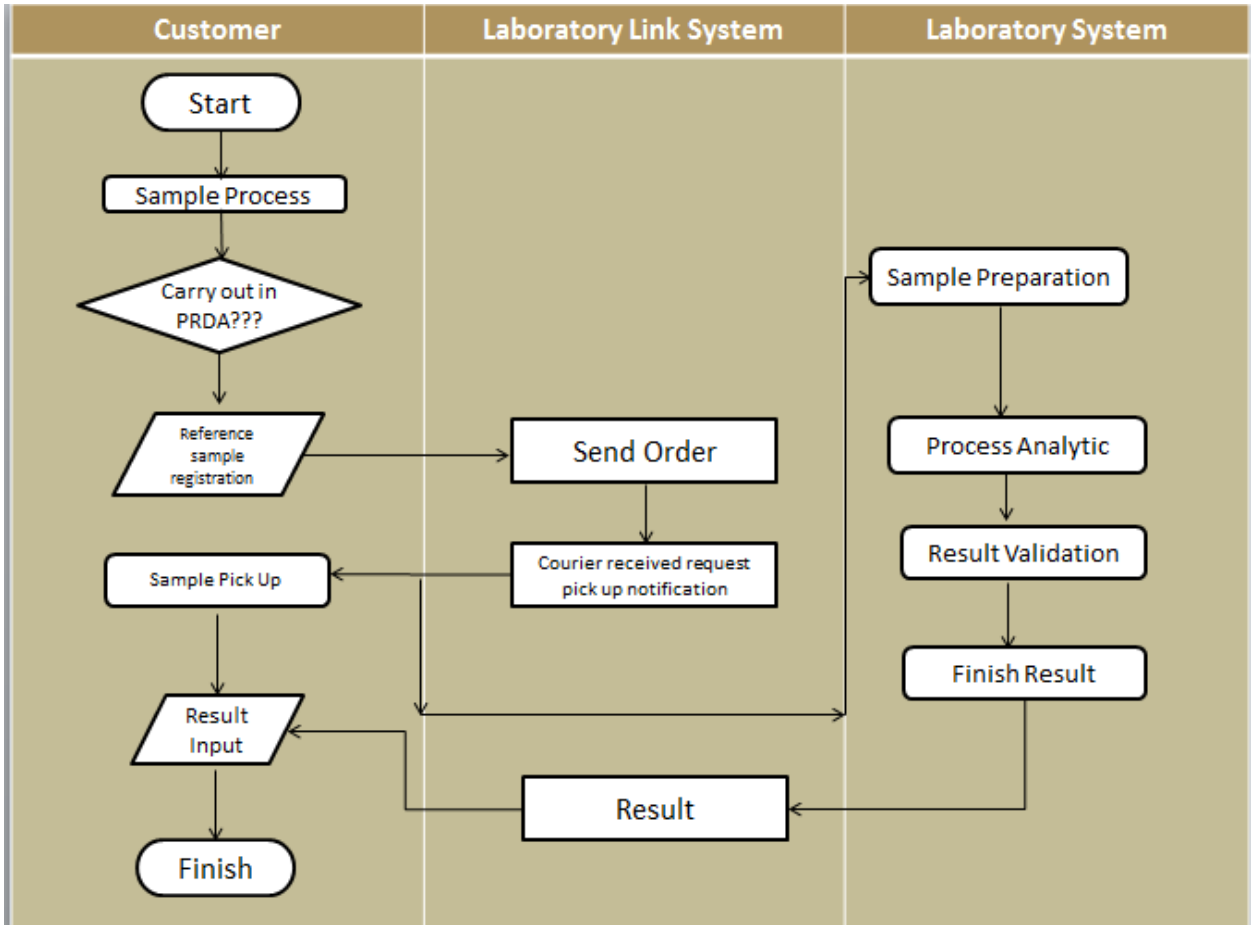

Figure 4. Proposed Process Flow for IT Link/Bridging Utilizers

Future Stream Mapping Depiction with the use of IT

Proposals of improvement will obtained steps from which waste and non-value added have been eliminated or reduced. The work design process were also takes into standardization of procedures which aims on stable process condition.

Comparison of business process time before and after the proposed improvement, which is:
Lead Time and Process Time before repair: 825 minutes
Lead Time and Process Time after suggested improvements: 370 minutes
Decrease = (95/370)*100 = 25.67%. So after suggested improvements decrease 25.67%.

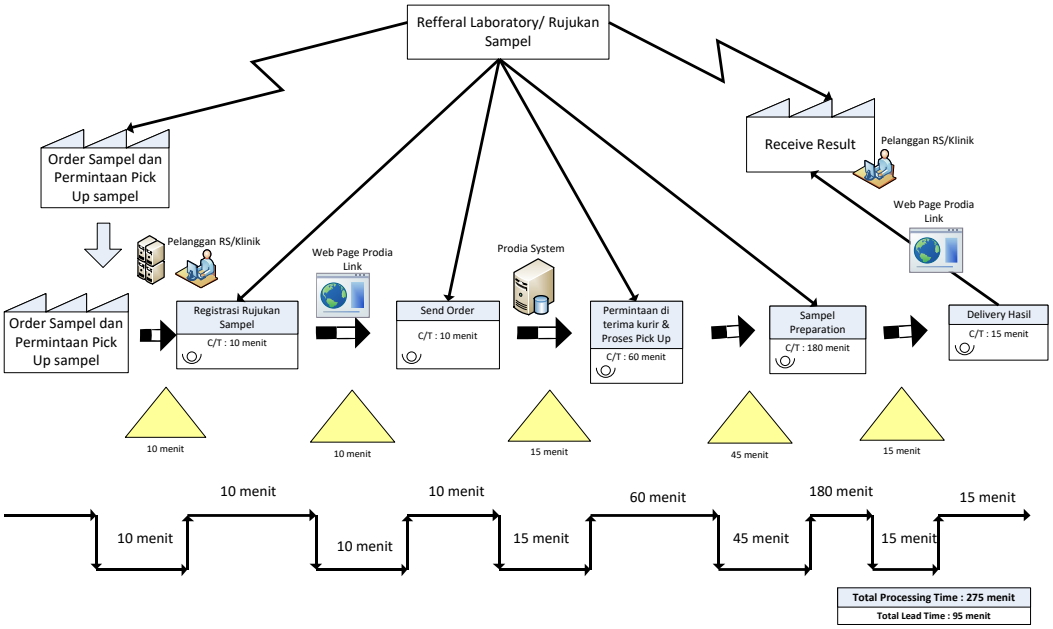

Figure 5: Future Stream Mapping of Reference Sample of Business Process

CONCLUSION AND SUGGESTION

Conclusion

According to the research results and those analysis process which author has done, it could be concluded that:

1) The sample order process is a business process which include in a non-value added activity that could hinders the business process, which is on activity of contacting the branch office of health laboratory service company to request a pick-up sample.
2) The process of verifying request for sample pick-up orders which identified as non-value added activities, namely the activity of calling back the courier officer and waiting for confirmation of the courier's willingness to pick up samples to the customer.
3) The result handling process has been identified as an activity that has no added value, namely the process of having to recheck the results that have been issued by the operations department and printing the receipt number and print out the proof of handover of the results given to the courier.
4) The process of delivering results identifies as an activities which have none added value but cannot be eliminated, meaning that in this process, a simplification process needs to be carried out so that it will not hamper other activities in the business process. Which means that customers could access online first before the original results could be received by customers.

Suggestion

The following suggestions are for improvements of each service process which are expected to increase the effectiveness and efficiency of referral sample services:

1) Proposals for improvement in ordering pick-up sample including:
   The use of the pick-up sample ordering system in addition to contact via phone which could be done by online ordering (bridging). Through these bridging / link system, it would increase effectiveness, so it would provide convenience for customers and also the speed at which branch offices received responses in the process of sample pick-up requests. This could also provide value to customers because customers do not need to pay telephone fees to contact the branch offices.
2) Proposed improvements to the verification process of pick up samples order:
   a) By the use of Link system, the service department do not need to contact the courier to inform about a request for pick-up sample to the customer. This would increase the effectiveness and reduce customer waiting time.

   b) Elimination of activities which are not have value added
3) Proposed improvements to the process of re-registration of sample reference data:
   a) The use of Link/Bridging system where the customer could input the patient data and types of examinations. So as to reduce the input errors in branch office service officers.
   b) Elimination of activities that are not value added.
4) Proposed improvements to the result handling process:
   a) Through the Link/Bridging system, this process would be eliminated.
   b) Elimination of activities which are not value added.
5) Proposed improvements to the sample preparation process:
   The implementation of the Link/Bridging system by providing additional value to customers, where the customers could monitor the stages where the sample has been processed.
6) Proposed improvements to the delivery result process:
   The implement of the link result system just could be done by accessing it online, thereby reducing patient waiting time to received the examination results.

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