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# ePathologist

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## Business Process

Current System has following main workflows:

- a. Patient Registration
- b. Sampling
- c. Accessioning
- d. Laboratories
- e. Result Printing

## Patient Registration

Once the patient came to lab its registration carried out at front desk. Front desk operator enters the patients name and phone number and system searches the patient record if it already exists in the system otherwise new patient registration is taken places and tests are entered for that patient. There is bar code allocated to patient that contains the account # and test information.



## Sampling

Once patient registration takes place then patient is forwarded to the Sampling counter, then samples are taken from patient. These samples are taken into "red", "blue", "yellow" tubes depending on the type of test. Once sampling is done, a barcode is printed and pasted on the test tubes.

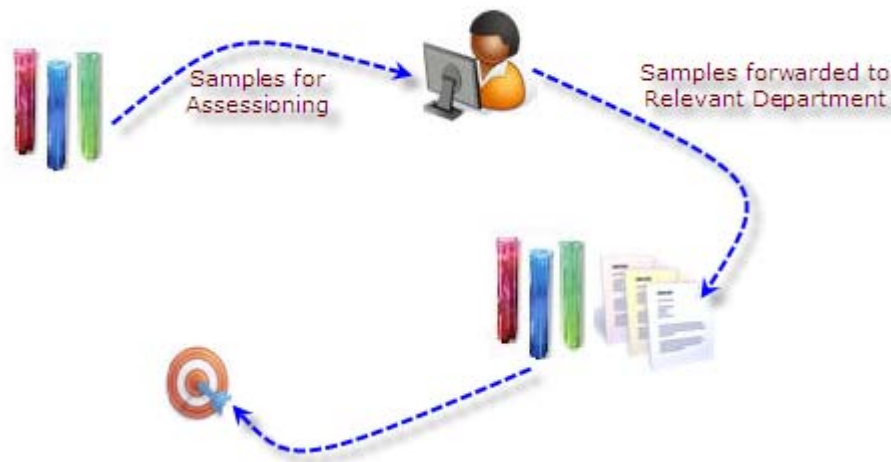


## Accessioning

After Sampling phase, samples forwarded to Accessioning phase where depending upon the capability of testing machines that will be used to conduct test the samples are sorted.

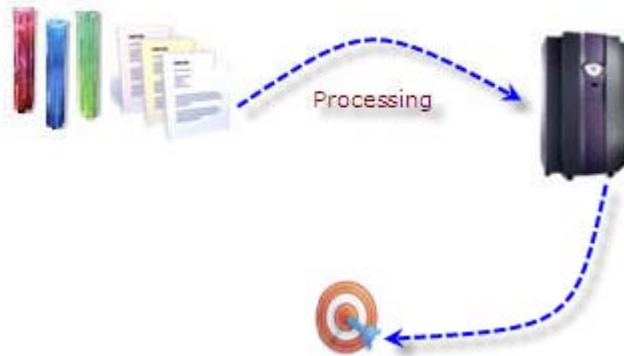
If a machine can perform test on sample and can input and output data to system using RS 232 then sample is forwarded to relevant laboratory.

If a machine can't interact with the system or output the data using RS 232 then again barcode generated from here and pasted on the relevant test form and once the tests are done the result is written in to this form and ultimately data is entered manually to software.



## Laboratories

Samples according to their nature of test come to different laboratories. There are two types of machines in laboratories, Two machine and one way machine, Two way machines are usually RS 232 enabled and require no human interaction once the test tube is placed in the machine ,where as one way machine has the interface to which requires human interaction to tell what tests need to be performed.



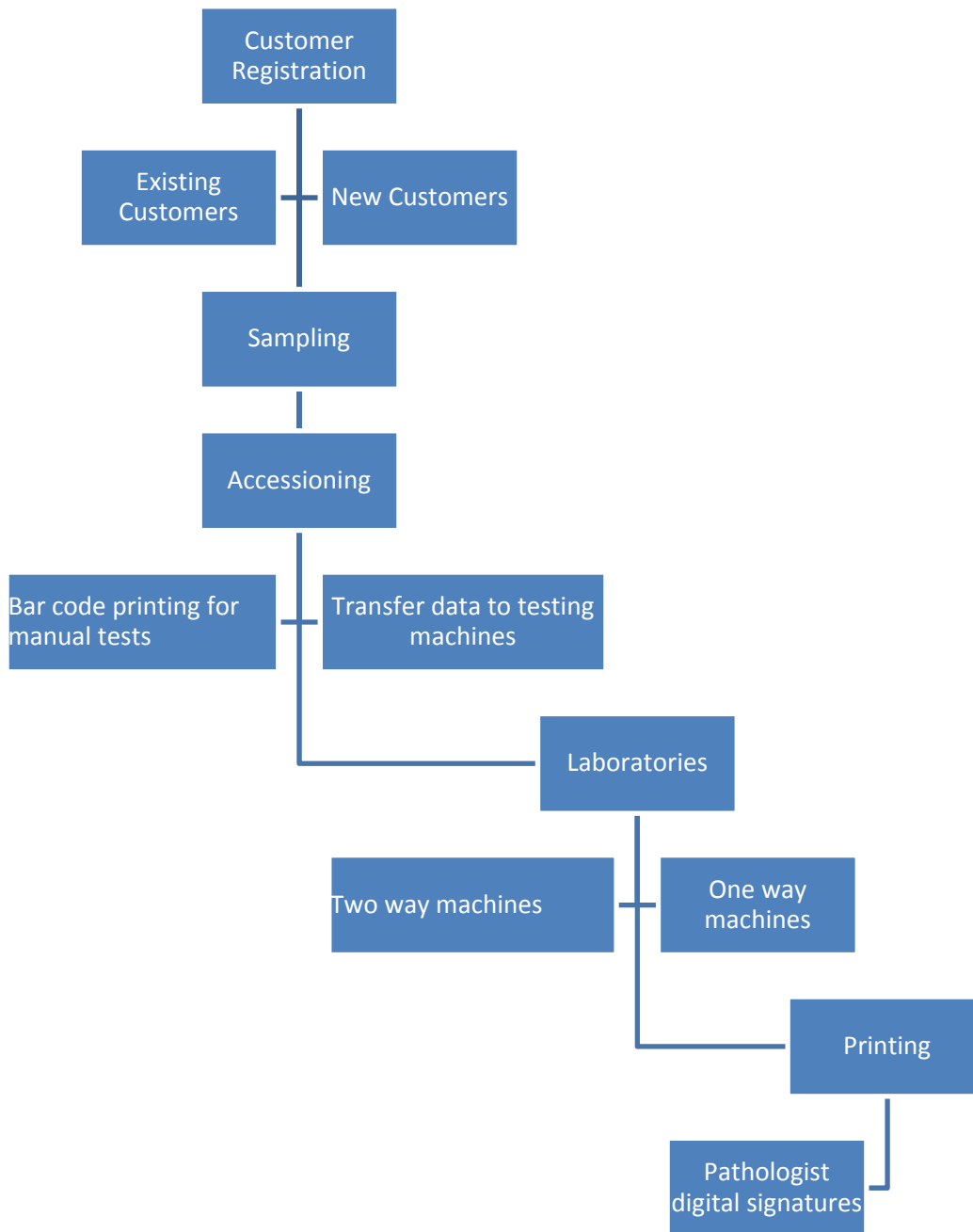
## Result Printing

When tests are conducted on samples then result forwarded to the printing desk which depending upon the result output prints the result on the prescribed format. Before the reports are printed pathologist verifies the report and put digital signatures in to it.

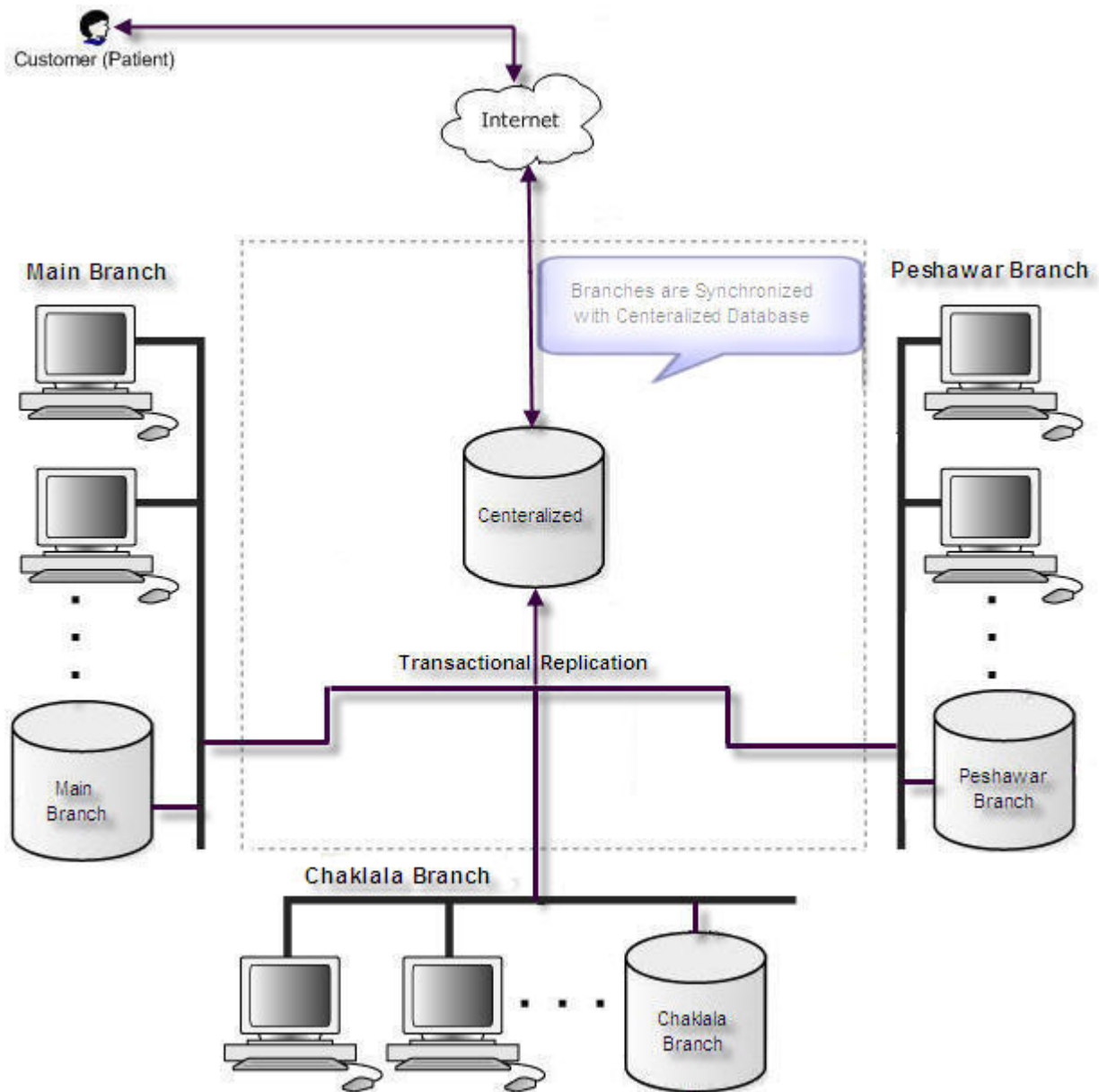




## Architecture Diagram of existing work flow



## Database Architecture



## Based on Distributed Databases Architecture

A distributed database is a database spread across a network of computers that are geographically distributed and can be communicated through communications links. It is under the control of a centralized DBMS.

Transactional replication will be used in this architecture. By using replication we can move data and database objects from one database to another and across different platforms and geographic locales. This allows users to work with a local copy of the database, and any changes they make are transferred to one or more remote servers across the network. The consistency of the database is maintained by the process of synchronization.

## Working of Proposed Architecture

- All the branches are directly connected with their Local Database Servers.
- These Local Database Servers are connected with Centralized Database Server.
- Whenever there will be any transaction on local Server it will be replicated to Centralized Server and all the connected Local Servers are updated with that change.
- In case if during this replication any local server was down on temporary basis it will be updated with latest changes as soon as it will be up.
- Customer (Patient) will be provided with a web interface for just read only access to his/her area.
- Web application will be connected with Centralized Database.
- In this type of Architecture we have same data replicated at all the places.

## Benefits of using Distributed Architecture

There are many advantages of using Distributed Databases some of which are listed below.

- A distributed database stored across multiple systems in a single largest location reflects excellent organizational structure.
- A distributed database system protects valuable data in case there is a catastrophic event like fire.
- Since the data is dispersed in multiple locations, there is less risk of damages.
- Users can experience improved performance since the database systems are parallel. It allows the load on databases to be balanced equally among servers.

