Gleecus
Forward Thinking Digital Innovation

CASESTUDY

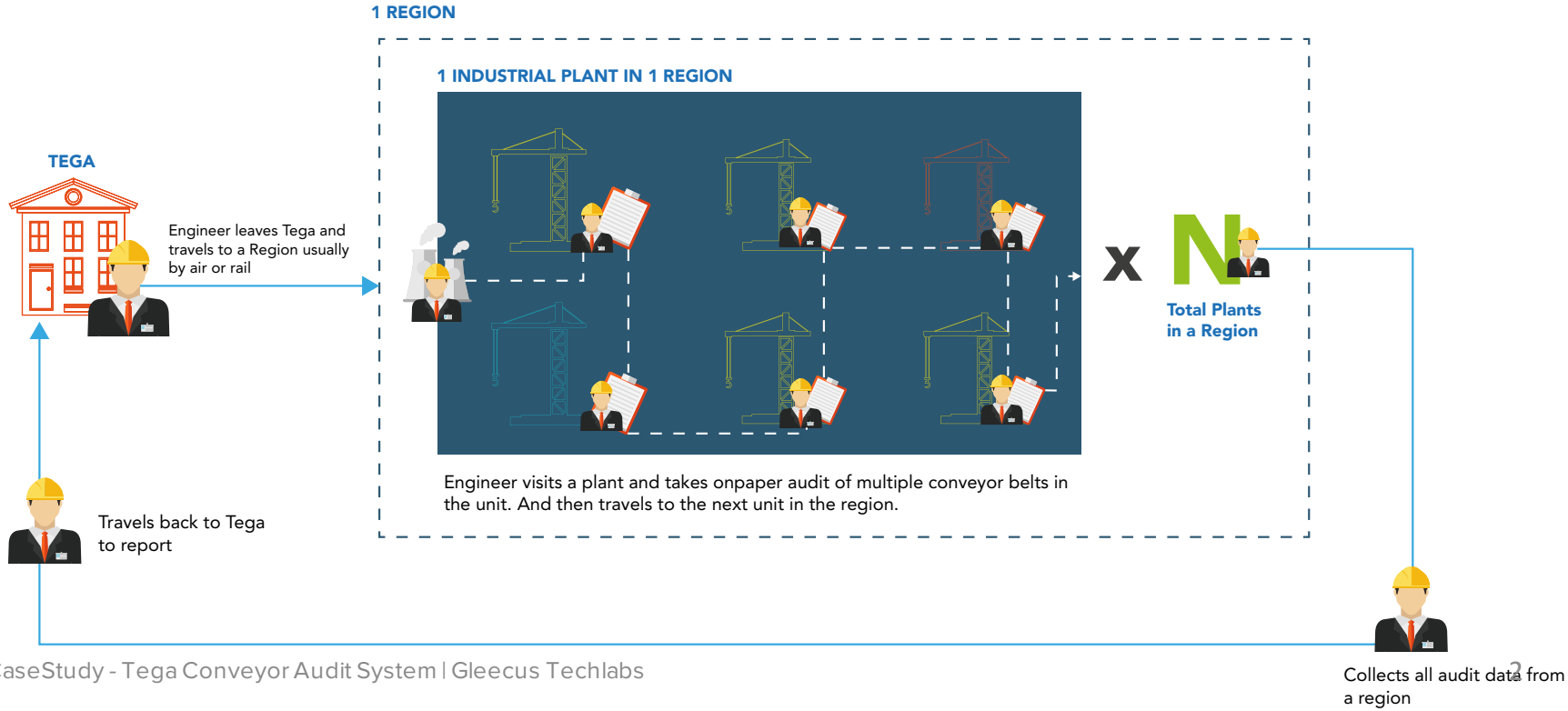
Paperless. Efficient. Secured.
That's what was missing.
That's what we delivered.

A Case Study of how we resolved a very typical use-case in Field Data Collection with its atypical challenges.

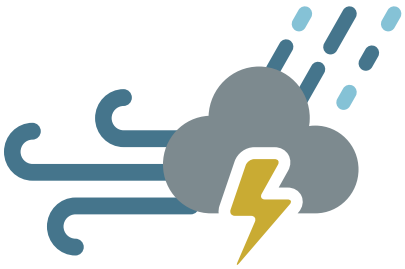
Background

Tega is 33 years into manufacturing of machineries used in mineral beneficiation industries with a presence in over 21 countries. It primarily deals in manufacturing, servicing and R&D of conveyor belt components and parts. One of the key areas of their service lines is periodic audits of conveyor belts and rectification of faulty equipment.

For a very long time their Conveyor Audit was done by a system majorly dictated by a paper note system with a lot of human intervention for reporting. This system for more than a 2 decades caused a hindrance in improving their efficiency, turnaround times and customer satisfaction. Usually a Field Auditor would be visiting an industrial plant or unit and take manual note of each conveyor belt. He would be going through each conveyor belt as fitted with Tega parts (sometimes up to 12 conveyor units in a single plant separated at a distance of 10 feet to 2 kms) and do the entire audit on a series of paper forms filling up all the details. Usually an auditor has an entire region to cover before travelling back to the head center. Even then it was painful as the auditor needs to submit this whole lot of paper forms to another personnel to input into their digital system connected to Tega's central database. When this entire process is done only then can an action for the rectification can be taken and engineer visits scheduled. This entire system was painful, inefficient, time taking and an overall faulty method.



Factors why the on-paper system didn't work



Extreme Weather Conditions

A on-paper system did not work efficiently when winds blew at 80 mp/h or during torrential downpour. Factors like low visibility, just a railing to hold at a height of 200 meters etc. made it more so painful.

Remote and Harsh Locations

Remote and Harsh locations furthermore added to the agony of the field auditors filling up paper forms. Lethargy added to the pain.

Paper Pile

Paper pile due to high volume of forms and fields added furthermore confusion and erroneous data capture.

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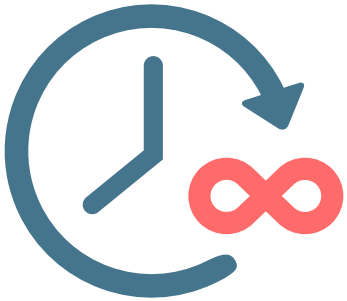


Very high reporting time

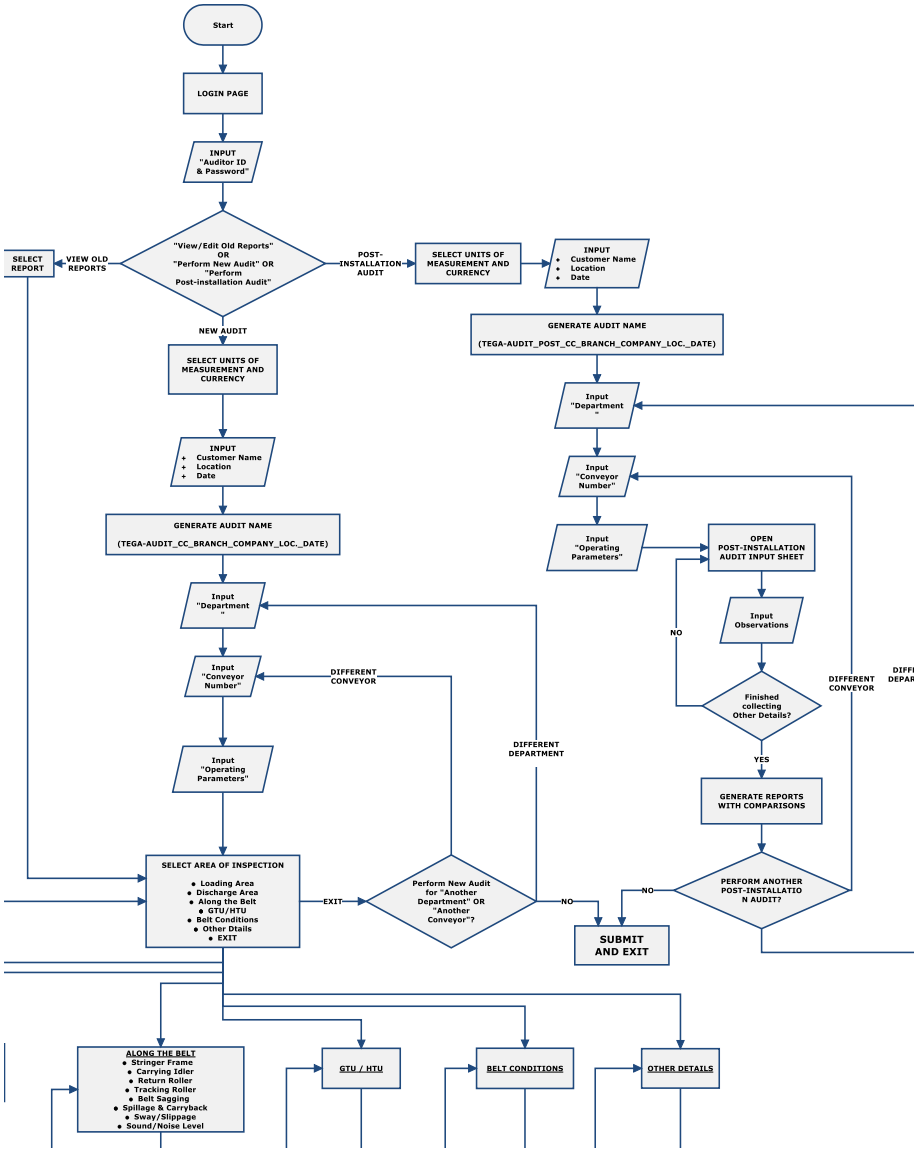
It took on an average 15-20 days to report an entire region’s conveyor audit data.

Human Error

Since the data was scattered and highly segmented, human error risk was high.

Then came the solution.
Introducing the Conveyor Audit System.
On Android Tablets.

Our team quickly studied the above cases and came up with an effective solution. The concept for a Conveyor Audit System was to be introduced as an Android Tablet based application for Field Auditors to use along with **offline data storage** and the ability to **take pictures and videos** along with the form data. But this came with its fair share of challenges.



Challenge 1

- The data parameters and entries were unstructured and high multitude. The excels that the TEGA team gave us were outrageous.
- There wasn't a simplified approach that the customer had in mind.

Solutions

- We created the IA(Information Architecture) for the Audit System.
- We created logical grouping of data inputs and decided that "all is not for all." This is where a digital system trumps over a paper based system primarily.

Challenge 1

• TEGA's Central Database and Application connecting its ERP and CRM is built on a home grown Windows IIS Server and the current applications are built on .NET.
• Building an Application Server with Restful web-services would be a challenge on the current stack whereas Tega could not let go of its current stack due to its entire Backend system running on that.

Solutions

• We built a Rails based application server for the Mobile App connecting to the existing MsSQL server through ODBC.
• Restful web-services could be written on Rails.
• We created a Replicated Slave dB corresponding to the TEGA central dB to avoid single point of failure. But since the dB is replicated data would be seamless..
• Load balancers put for the application server to handle large data input like pictures and videos uploaded along with form data.

Tega increased their **Audit Efficiency** in years, reduced **Turn around Time** and deployed **Customer Solutions** faster!!